



Report

Environmental Review Document

Bonney Downs Wind Farm

19 February 2026

Document No: 549PG-5692-RP-EN-0001

Rev: 2



Bonney Downs Wind Farm Environmental Review Document

Proponent

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Rev	Description	Date
A	Draft for Fortescue Review	20/05/2025
B	Draft for Traditional Owner Review	20/06/2025
2	Submission to EPA	30/01/2026

Task	Name	Company	Signature	Date
Prepared by	Hannah Nichol	Jacobs Group (Australia) Pty Ltd		20/06/2025
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EXECUTIVE SUMMARY

Pilbara Energy (Generation) Pty Ltd (PEG), a wholly owned subsidiary of Fortescue Limited (Fortescue), is proposing to develop the Bonney Downs Wind Farm, comprising a wind farm and associated supporting infrastructure (the Proposal). The Proposal is located approximately 9 km southwest of Nullagine (at the northern extent of the Proposal). The southern edge of the Proposal is adjacent to Fortescue's Christmas Creek Iron Ore Mine Expansion project (as per the Development Envelope approved by Ministerial Statement (MS) 1033).

The Proposal will involve the installation of up to 100 wind turbines and associated infrastructure, with a target installed renewable energy capacity of approximately 2.1 Gigawatts (GW). The Proposal will connect with the Nullagine Pilot Wind Farm to link into the wider Fortescue Integrated Power Network. The Proposal includes a Development Envelope (DE) of 89,973.86 ha within which an Indicative Disturbance Footprint (IDF) of 944.07 ha is anticipated.

Background and Context

The purpose of this Environmental Review Document (ERD) is to present an Environmental Impact Assessment (EIA) of the Proposal to support the referral of the Proposal to the Environmental Protection Authority (EPA) under section 38 of the *Environmental Protection Act 1986* (EP Act). This ERD has been prepared in accordance with the EPA's *Instructions on how to prepare an Environmental Review Document* (EPA, 2024a) and is based on project and study information available at the time of writing.

Overview of the Proposal

The physical, construction and operational elements required under section 38 of the EP Act are summarised in Table ES-1 and Table ES-2.

Table ES-1: Proposal Summary

Item	Description
Proposal Title	Bonney Downs Wind Farm
Proponent Name	Pilbara Energy (Generation) Pty Ltd
Short Description	<p>The Proposal is for the construction and operation of the Bonney Downs Wind Farm to connect with the Fortescue Integrated Power Network.</p> <p>The Proposal comprises the installation of wind turbines, substations, 33 kV reticulation to collect power from wind turbines, associated supporting infrastructure, and linear supporting infrastructure such as roads, pipelines and corridors for overhead electrical reticulation.</p> <p>The Proposal is located approximately 9 km southwest of Nullagine (at the northern extent of the Proposal) in the Shire of East Pilbara and Palyku and Niyaparli Native Title Determination areas.</p>



Table ES-2: Proposal Content Elements

Element	Location	Proposed Extent
Physical Elements		
<p>Wind Farm elements:</p> <ul style="list-style-type: none"> • Wind turbines and hardstands, • Overhead electrical reticulation (33 kV), and • Substations and switchyards. <hr/> <p>Supporting and ancillary infrastructure elements:</p> <ul style="list-style-type: none"> • Access roads and service corridors, • Accommodation camps (construction and permanent), • Wastewater treatment plant, • Laydown areas, • Concrete batching, • Explosives storage, preparation facilities and hydrocarbon storage, • Waste management and landfill, • Borrow pits, • Meteorological masts, • Crushing and screening plant, • Topsoil stockpiles, • Communication towers, • Site offices and workshops, and • Battery energy storage system(s) (BESS) 	<p>Figure 3-2</p>	<p>Development Envelope of 89,973.86 ha, including: Indicative Disturbance Footprint up to 944.07 ha Clearing of native vegetation up to 910.25 ha, including:</p> <ul style="list-style-type: none"> • 443.39 ha of permanent clearing, and • 466.86 ha of temporary clearing.
Construction Elements		
<p>Water infrastructure (storage infrastructure (such as turkey's nests) and pipelines to transport water from the existing production bores to the storage infrastructure).</p>	<p>Figure 3-2</p>	<p>Up to 850 megalitre (ML)/annum during construction period.</p>
<p>Backup Power Supply:</p> <ul style="list-style-type: none"> • Diesel Generators, and • BESS. 	<p>Figure 3-2</p>	<p>Up to 4 megawatts (MW) (instantaneous load requirement).</p>
Operational Elements		
<p>Wind Energy Generation</p>	<p>Figure 3-2</p>	<p>Individual wind turbines generating renewable electricity</p>
<p>Transmission and Energy Storage (substations and associated battery energy storage systems (BESS)).</p>	<p>Figure 3-2</p>	<p>Up to six substations including BESS.</p>
<p>Water infrastructure (storage infrastructure such as turkey's nests) and pipelines to transport water from the existing production bores to the storage infrastructure).</p>	<p>Figure 3-2</p>	<p>Up to 100 ML/annum during operational period.</p>
<p>Backup Power Supply</p> <ul style="list-style-type: none"> • Diesel Generators, • Thermal Generators, and • BESS. 	<p>Figure 3-2</p>	<p>Up to 4 MW (instantaneous load requirement).</p>



Proposal Elements with Greenhouse Gas Emissions*

Construction Elements

Scope 1:	Scope 1 emissions for the construction and installation phase of the Proposal is estimated to be 75,000 tCO ₂ -e per annum
No Scope 2 emissions are anticipated from the Proposal in construction as all electrical power will be self-generated.	No Scope 2 emissions are anticipated from the Proposal in construction as all electrical power will be self-generated.
Scope 3:	Emissions during manufacturing and construction of facility and equipment are expected to be less than 40,000 tCO ₂ -e per annum.

Operational Elements

Scope 1:	Scope 1 emissions during operations are expected to be approximately 325 tCO ₂ -e per annum.
Scope 2:	No Scope 2 emissions are anticipated from the Proposal in operations as all electrical power will be self-generated.
Scope 3:	Scope 3 emissions during operations are expected to be approximately 40,000 tCO ₂ -e per annum.

Total Emissions (based on annual average Scope 1 and Scope 2)

Approximately 85,000 tCO₂-e

Rehabilitation

Topsoil to be stored in allocated storage areas and used to rehabilitate areas disturbed for temporary facilities following construction. At the completion of the Proposal, any infrastructure no longer required will be removed and disturbed areas rehabilitated consistent with the surrounding landscape. Topsoil from permanent clearing will be spread consistent with the surrounding landscape or stockpiled.

Commissioning

The commissioning of the wind farm will commence with the completion of the wind turbine generators and main substation connecting the Proposal to the main power transmission network. Groups of wind turbines connected to the substations via the 33 kV overhead lines will be commissioned as power from the grid becomes available. Before any operational activity begins, comprehensive system testing will be conducted on all turbines, electrical infrastructure, and grid connections to ensure that all components meet safety, performance, and environmental standards. Performance testing, and noise emission testing will be completed after commissioning if required.

Decommissioning

At completion of the operational phase, the decommissioning of the wind farm will involve the removal of all wind turbines, towers, foundations (to a specified depth), transformers, cabling, and other above-ground infrastructure. Underground components, such as cables or foundations below a certain depth, may be left in place if deemed environmentally preferable, in line with regulatory guidelines. All removed materials will be handled responsibly, with recyclable components sent to appropriate facilities and non-recyclable waste disposed of according to local regulations.

Additional options for the Proposal may include re-purposing of the wind farm through third party agreements where the wind turbines and supporting infrastructure will remain in situ based on Post Closure Land Use discussions and negotiations with relevant stakeholders.

Works will be planned to minimise environmental impact and restore the site to its pre-development condition as much as feasible.

* The emissions estimates are based on a layout of up to 200 wind turbines. The Proposal has since been refined to 100 turbines. As a result, the emission numbers reported are overestimated.



Other elements which affect extent on the environment

Proposal time	Maximum project life	25-30 years At the end of life, the site will either be repowered or decommissioned.
	Construction phase	Approximately 34 months.
	Operations phase	Operations across the proposed site will be achieved once commissioning of all stages is complete. Infrastructure to be maintained and then replaced or decommissioned at the end of asset life (approximately every 30 years).
	Decommissioning phase	Approximately 24 months.



Summary of Potential Impacts, Proposed Mitigation and Outcomes

Table ES-3: Summary of Potential Impacts, Proposed Mitigation and Outcomes

Flora and Vegetation	
EPA Objective	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.
Policy and Guidance	<ul style="list-style-type: none"> • Technical Guidance – Flora and Vegetation Surveys for EIA (EPA, 2016a). • Environmental Factor Guideline – Flora and Vegetation (EPA, 2016b).
Potential Impacts	<ul style="list-style-type: none"> • Direct Impacts: <ul style="list-style-type: none"> ○ Clearing of up to 910.25 ha of native vegetation, ○ Clearing of up to 7.34 ha of riparian vegetation, which includes 3.13 ha of groundwater dependent vegetation and 4.20 ha of potentially groundwater dependent vegetation, ○ Clearing of up to 76.65 ha of the 'Four plant assemblages of the Wona Land System' Priority Ecological Community (PEC), sub-community Cracking clays of the Chichester and Mungaroo Range (Priority 1), ○ Clearing of up to 9.61 ha of vegetation type VfAI which is potentially the 'Four plant assemblages of the Wona Land System' PEC sub-community Cracking clays of the Chichester and Mungaroo Range (P1), ○ Clearing of up to 82.47 ha of significant habitat for Priority flora species, ○ Clearing of Priority flora species, including: <ul style="list-style-type: none"> ▪ <i>Paspalidium retiglume</i> (Priority 2): one individual, ▪ <i>Neptunia longipila</i> (Priority 3): 10 individuals, ▪ <i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3): 23 individuals, ▪ <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (Priority 3): 72 individuals, ▪ <i>Lotasperma sessilifolium</i> (Priority 3): one individual, ▪ <i>Swainsona thompsoniana</i> (Priority 3): 18 individuals, and ▪ <i>Ptilotus mollis</i> (Priority 4): 35 individuals. • Indirect Impacts: <ul style="list-style-type: none"> ○ Fragmentation of conservation significant flora species habitat, ○ Edge effects on seven conservation significant flora species, totalling 526 individuals from three Priority flora species: <ul style="list-style-type: none"> ▪ <i>Paspalidium retiglume</i> (P2) – 101 individuals, ▪ <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3) – 180 individuals, and ▪ <i>Ptilotus mollis</i> (P4) – 105 individuals,



	<ul style="list-style-type: none">○ Edge effects on 'Four plant assemblages of the Wona Land System' PEC, sub-community Cracking clays of the Chichester and Mungaroona Range (Priority 1) and vegetation type VfAI which is potentially the 'Four plant assemblages of the Wona Land System' PEC sub-community Cracking clays of the Chichester and Mungaroona Range (Priority 1),○ Reduced health of riparian vegetation or groundwater dependent vegetation through changes to hydrology and hydrogeology,○ Introduction or spread of weed species,○ Increased dust generation and deposition during construction, and○ Increased risk of bushfire incidents as a result of hot works during construction, or during operations.● Cumulative impacts:<ul style="list-style-type: none">○ Combined impacts to the remaining extent of pre-European vegetation associations associated with the Proposal and other developments in the surrounding area,○ Combined clearing of Priority flora species individuals reducing the extent of occurrence of the species or changing its conservation status at a regional or species level,○ Combined impacts to groundwater dependent vegetation and potentially groundwater dependent vegetation resulting from direct clearing of vegetation associated with the Proposal and other developments in the surrounding area, and○ Combined impacts to 'Four plant assemblages of the Wona Land System' PEC (Priority 1, Priority 3) resulting from direct clearing of vegetation associated with the Proposal and other developments in the surrounding area.
Mitigation	<ul style="list-style-type: none">● Avoidance:<ul style="list-style-type: none">○ The Proposal has been substantially reduced to avoid impacts wherever possible. This has included significantly reducing the number of turbines from 200 to 100 and implementation of large areas of exclusion zones around important areas of vegetation and habitat throughout the DE. As such, the IDF for the Proposal is less than half that of the originally proposed design.○ Avoidance of known locations of Sheet-flow dependent mulga vegetation and Threatened flora species, Pilbara Foxglove (<i>Quoya zonalis</i>), through design refinement of the DE,○ Where conservation significant flora or vegetation occurs close to the IDF 'no-go' zones will be demarcated prior to construction activities to protect the conservation significant flora species and vegetation from impacts such as accidental clearing or disturbance, and○ Areas to be cleared will be demarcated on the ground (either physically or using GPS enabled methods).● Minimisation:<ul style="list-style-type: none">○ All clearing areas will be checked and confirmed post-clearing through inspection of aerial imagery of clearing areas and comparison to the IDF. Site inspection will be undertaken prior to and following clearing to confirm no-go areas are appropriately demarcated. Disturbance will be managed using Fortescue's Land Use Certificate system,○ Comprehensive weed hygiene management through implementation of weed management measures (Reference: 45-PL-EN-0033),○ Groundwater abstraction for construction and operational water requirements is approved by Groundwater Licence (GWL)171278(7) and will be managed under the conditions of this GWL and the accompanying Groundwater Operating Strategy (GOS) (BC-16018-RP-HY-0001),



	<ul style="list-style-type: none">○ Dust deposition will be managed through standard construction measures (e.g., water application and exposed surface stabilisation) to minimise dust generation and avoid impacts on vegetation in line with standard dust management measures, and○ Implementation of fire risk management measures will be undertaken.● Rehabilitation:<ul style="list-style-type: none">○ Rehabilitation of a total of 480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) which will be undertaken progressively after each phase of the construction activities to reduce impacts to flora and vegetation over time, including potential fragmentation.
Outcomes	<p>FV-1 Environmental Outcome: Clearing no more than 910.26 ha of native vegetation (including 881.32 ha of ‘Good to Excellent’) within DE, of which no less than 480.81 ha will be rehabilitated.</p> <p>FV-2 Environmental Outcome: The implementation of the proposal will not result in the change of conservation status of identified conservation significant vegetation, including:</p> <ul style="list-style-type: none">● Direct disturbance of no more than 76.65 ha of ‘Four plant assemblages of the Wona Land System’ PEC (P1),● Direct disturbance of no more than 9.61 ha of potential ‘Four plant assemblages of the Wona Land System’ PEC (P1),● Direct disturbance of no more than 3.13 ha of groundwater dependent vegetation,● Direct disturbance of no more than 4.20 ha of potential groundwater dependent vegetation,● Direct disturbance of no more than 82.47 ha of habitat for significant Priority flora species, including:<ul style="list-style-type: none">○ 22.62 ha of Area 1 (VfAI),○ No disturbance of Area 2 (VfAI)○ 8.19 ha of Area 3 (VfAI),○ 47.02 ha of Area 4 (EIAbTI),○ 4.64 ha of Area 5 (EIGwTe), and○ No disturbance of Area 6 (VfAI) <p>FV-3 Environmental Outcome: No direct or indirect disturbance to the Threatened flora species <i>Quoya zonalis</i>.</p> <p>FV-4 Environmental Outcome: The implementation of the proposal will not result in the change of conservation status of identified conservation significant flora species, including:</p> <ul style="list-style-type: none">● No more than 0.4% of <i>Paspalidium retiglume</i> (P2) will be cleared,● No more than 5.3% of <i>Neptunia longipila</i> (P3) will be cleared,● No more than 3.1% of <i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3) will be cleared,● No more than 4.0% of <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3) will be cleared,● No more than 20% of <i>Iotasperma sessilifolium</i> (P3) will be cleared,



	<ul style="list-style-type: none"> No more than 2.0% of <i>Swainsona thompsoniana</i> (P3) will be cleared, No more than 0.5% of <i>Ptilotus mollis</i> (P4) will be cleared, <p>FV-5 Environmental Objective: Implementation of the Environmental Management Plan monitor and minimise impacts on flora or vegetation from dust, weed spread, or changes to natural fire patterns when compared with existing environmental conditions.</p>
Terrestrial Fauna	
EPA Objective	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Policy and Guidance	<ul style="list-style-type: none"> Technical Guidance – Terrestrial vertebrate fauna surveys for EIA (EPA, 2020). Environmental Factor Guideline – Terrestrial Fauna (EPA, 2016c). Guidelines for Determining the Likely Presence and Habitat Usage of Night Parrot (<i>Pezoporus occidentalis</i>) in Western Australia (DBCA, 2024f). Guidelines for Surveys to Detect the Presence of Bilbies and Assess the Importance of Habitat in WA (DBCA, 2017). Technical Guidance – Sampling of Short-Range Endemic (SRE) Invertebrate Fauna (EPA, 2016d).
Potential Impacts	<ul style="list-style-type: none"> Direct impacts: <ul style="list-style-type: none"> Clearing of critical habitat, critical supporting habitat and/or supporting habitat for conservation significant fauna species, Clearing of SRE habitat, Bird and bat collision with operational wind farm infrastructure, and Increased risk of vehicle strike during construction, maintenance and operational activities. Indirect impacts: <ul style="list-style-type: none"> Habitat fragmentation and proposal infrastructure acting as a barrier to fauna movement, Increasing access and attraction of scavenger and feral animals, Introduction and/or spread of weeds, Disrupted behaviour of nocturnal fauna due to artificial light, Disturbance from noise and vibration, Alteration or creation of microclimates, and Increased risk of bushfires. Cumulative impacts: <ul style="list-style-type: none"> Combined impacts from clearing of general fauna habitats associated with the Proposal and other developments in the surrounding area, Combined impacts from clearing of habitat critical to the survival of Threatened Species associated with the Proposal and other developments in the surrounding area, and



	<ul style="list-style-type: none">○ Combined disturbance to Threatened and Migratory Species from construction and operational activities associated with the Proposal and other developments in the surrounding area.
Mitigation	<ul style="list-style-type: none">● Avoidance:<ul style="list-style-type: none">○ The Proposal has undergone substantial redesign, resulting in a major reduction in scale, including a decrease in turbine numbers from 200 to 100 and a reduction in the IDF area from approximately 2,044 ha to 944.07 ha.○ Prior to conducting ground disturbing activities, ensure known locations of environmental sensitive areas (such as habitat critical to the survival of species) to be retained and protected from disturbance are identified on the ground by appropriate signage, fencing or flagging. No-go zones will be demarcated on Proposal drawings and physically on site prior to clearing activities.● Minimisation:<ul style="list-style-type: none">○ Clearing and ground disturbing activities limited to the defined clearing limits and boundaries described within the approval documentation. The extent of the approved clearing will be clearly communicated in documentation and site inductions. Pre-clearing photos to be documented and post clearing inspections to be undertaken,○ All site operatives and personnel attending the site will undergo an induction regarding Threatened fauna, and direct and indirect impacts (e.g., risk of vehicle strike, interaction with construction activities, waste management and introduction of feral animals),○ Strict speed limits will be enforced during dawn and dusk in order to avoid fauna strikes during clearing and construction (Chapter 8),○ Consideration will be given to the use of line marking along the internal electrical reticulation to increase visibility to birds and bats, and improve their ability to accurately perceive depth in relation to power lines. Ultraviolet (UV) line marking, if available, should also be considered, particularly with a view to minimising risks of nocturnal collisions (Dwyer <i>et al.</i>, 2020). The design of both power lines and poles will comply with recommendations developed by BirdLife International (BirdLife International, 2007) to minimise potential for impacts to birds,○ Comprehensive weed hygiene management through implementation of weed management measures. All works will be undertaken in accordance with Fortescue's Weed Management Plan (Reference: 45-PL-EN-0033) as the standard operating procedure,○ Implementation of fire risk management measures will be undertaken,○ All food waste will be regularly removed from site and disposed of at a licenced landfill facility to minimise attraction of feral animals,○ Lighting will be designed and managed in accordance with the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023c),○ Standard construction noise management measures will be implemented,○ Operational measures to reduce potential impacts associated with collision of the wind turbine (see Section 8.6 for further detail), and○ A Bird and Bat Management Plan (BBMP) will also be developed for the Proposal to minimise impacts to birds and bats, including collision impacts.● Rehabilitation:



	<ul style="list-style-type: none"> ○ Rehabilitation of 480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) after each phase of the construction activities will reduce impacts to fauna habitat over time, including potential fragmentation impacts.
Outcomes	<p>TF-1 Environmental Outcome: Disturbance of critical fauna habitat not to exceed:</p> <ul style="list-style-type: none"> • Clearing of no more than 1.42 ha of habitat identified as being critical to the survival of the Grey Falcon, • Clearing of no more than 14.95 ha of habitat identified as being critical to the survival of the Northern Quoll, • Clearing of no more than 238.24 ha of habitat identified as being critical supporting to the survival of the Northern Quoll, • Clearing of no more than 27.82 ha of habitat identified as being critical to the survival of the Ghost Bat and PLNB, • Clearing of no more than 27.82 ha of critical habitat for the Pilbara Olive Python within the DE will occur, • Clearing of no more than 281.81 ha of habitat identified as being critical to the survival of the Night Parrot, • Clearing of no more than 1.42 ha of potential Australian Painted Snipe and Common Greenshank dispersal and foraging habitat, and • Clearing of no more than 27.82 ha of habitat identified as being critical to the survival of the Peregrine Falcon. <p>TF-2 Environmental Outcome: Avoidance of habitat suitable for conservation significant fauna. Fauna Habitat Exclusion Zones (FHEZ) have been proposed to minimise impacts on critical fauna habitats and to ensure no disturbance occurs within these areas, these areas include:</p> <ul style="list-style-type: none"> • FHEZ of 5,894.74 ha of Rocky Escarpment habitat (including 1 km buffer), • FHEZ of 5,441.33 ha of Major Drainage Line/River/Creek habitat (including 500 km buffer, which allows for clearing but no turbines to be installed), and • FHEZ of 1,815.59 ha of Hills/Ranges/Plateaux (including 1 km buffer). <p>TF-3 Environmental Objective: Implementation of the Bird and Bat Adaptive Management Plan (BBAMP) to monitor and minimise collision risk impacts to species.</p>
Social Surroundings	
EPA Objective	To protect social surroundings from significant harm.
Policy and Guidance	<ul style="list-style-type: none"> • Statement of Environmental Principles, Factors and Objectives (EPA, 2023a). • Environmental Factor Guideline – Social Surroundings (EPA, 2023b). • Technical Guidance: EIA of Social Surroundings – Aboriginal Cultural Heritage (EPA, 2023c).
Potential Impacts	<p>Aboriginal Cultural Heritage and Cultural Values:</p> <ul style="list-style-type: none"> • Direct impacts: <ul style="list-style-type: none"> ○ Unauthorised disturbance/access to Heritage Places and objects within the DE, ○ Disturbance to Mesas landforms of cultural significance, ○ Potential impacts to culturally significant plants and animals (including Migratory birds),



	<ul style="list-style-type: none">○ Disturbance to creek lines or banks from proposed crossings or widening of existing tracks over creeks, and○ Loss of culturally significant pools, including Bonnie Pool.○ Potential loss of access to Country to undertake traditional activities (such as hunting or camping).● Indirect impacts:<ul style="list-style-type: none">○ Decline of plant health for culturally significant flora in high-risk areas,○ Reduced aesthetics from seeing the Wind turbines and dust generated from activities at culturally significant places used by Traditional Owners, and wider landscape,○ Excessive dust and noise levels during construction and operations impacting ability to undertake traditional activities within the area and specific locations (including Bonnie Pool),○ Noise and vibration from operating wind turbines resulting in altered animal behaviour (discussed further in Chapter 10: Terrestrial Fauna),and○ Altered hydrological regime of rivers and creek lines impacting health of culturally significant waterways and natural characteristics. <p>Non-Aboriginal Heritage:</p> <ul style="list-style-type: none">● Potential direct impacts from the Proposal on Non-Aboriginal heritage include damage or degradation of Bonney Downs Homestead and Log Cabin from construction and operation of the Proposal. <p>Amenity:</p> <ul style="list-style-type: none">● The Proposal will result in permanent changes to the landscape due to the placement of man-made structures in an otherwise natural landscape,● An increase in noise levels compared to baseline during construction,● An increase in noise levels compared to baseline during wind farm operations,● Increased noise levels and human discomfort during construction activities, due to elevated noise levels and ground-borne vibration at Bonney Downs Homestead,● Increased noise levels and human discomfort during operations, due to elevated noise levels and ground-borne vibration at Bonney Downs Homestead, and● There are potential impacts in relation to the Proposal resulting from dust on Bonney Downs Homestead.
Mitigation	<p>Aboriginal Cultural heritage and Cultural Values:</p> <ul style="list-style-type: none">● Avoidance:<ul style="list-style-type: none">○ Undertake heritage surveys and consultation to identify Heritage Places and areas of cultural significance,○ Undertake relevant impact assessments/studies to assess potential impacts as designs plan change (where applicable),○ All Heritage Places and Heritage Restriction Zones (HRZs) will be identified in Fortescue’s GIS system,○ IDF designed to avoid Heritage Places and areas of cultural significance (where practicable),



- Fencing of Heritage Places in proximity to proposed works (where required) or demarcation of LUC activity area in accordance with Fortescue's Heritage LUC Demarcation Procedure (100-GU-HE-0010),
- Culturally significant water sources, areas of culturally significant flora and fauna, and areas requiring access to undertake traditional activities are recorded in Fortescue's GIS system as Heritage Places or HRZs,
- IDF designed to avoid Bonnie Pool,
- Culturally significant plants or animals which require ongoing management to be included in environmental management plan,
- Implementation of mitigation measures outlined in Chapter 7 (Flora and Vegetation) and Chapter 8 (Terrestrial Fauna),
- Heritage Places or areas of cultural significance that are dust, noise, visual, or vibration sensitive will be recorded as such in Fortescue's GIS system,
- Access to Bonnie Pool, creeks, and tributaries is maintained, and
- Access to Nullagine Mine Haul Road and surrounding area is maintained.
- Minimisation
 - Relevant Heritage conditions applied to Land Use Certificates (LUCs) prior to undertaking works in the DE,
 - Undertake Heritage LUC Audits during construction phase and ground disturbing activities (as required),
 - All personnel mobilised to site to undertake general and site-specific inductions regarding Fortescue's heritage management procedures,
 - Undertake blasting activities in accordance with Fortescue's Blasting Near Heritage Place Procedure (100-PR-HE-0003),
 - Where required, seek heritage approvals under relevant heritage legislation in consultation with Palyku and Nyiyaparli,
 - Proposal designed to minimise impacts to creeks by reducing the number of creek crossings and utilising existing crossings where practical,
 - Where creek crossings are required to provide connectivity to the turbines within the DE, they are designed to:
 - Utilise existing access tracks where possible,
 - Minimise impacts to heritage sites,
 - Maintain flow continuity and prioritise using floodways where possible,
 - Reduce disturbance footprint in watercourses,
 - Minimise gradient of road entry and exit points at crossing locations
 - Pole locations located outside of high flow areas, where required to be installed within rivers, as far as possible,
 - Turbine locations to avoid major watercourses and associated 1% Annual Exceedance Probability (AEP) floodplain area,
 - Turbine hardstand areas and supporting infrastructure to be positioned outside of noted flood prone areas
 - Turbine access track designed to minimise crossings of major watercourses and flow paths,
 - Implementation of a construction surface water and sediment management plan throughout the construction phase,
 - Establish appropriate criteria/thresholds for managing areas of culturally significant plants or animals in high-risk areas, that might be identified (where existing management strategies or procedures may not apply),



	<ul style="list-style-type: none">○ Clearing of land kept to a minimum to reduce potential loss of traditional flora species and culturally significant fauna habitat,○ Implement general dust management protocols to minimise dust generated from Fortescue activities in accordance Fortescue Dust Management Plan/Procedure,○ The Proposal has been designed to ensure turbines will not located on hills or mesas.○ Ensure consultation with PJAC and KNAC regarding Decommissioning Plan (where required),○ Notifications for road closures will be provided to PJAC and KNAC during construction or maintenance activities, and○ Access protocol to be developed with Palyku Traditional Custodians for continued access to Bonnie Pool● Rehabilitation:<ul style="list-style-type: none">○ Rehabilitation of a total of 480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) which will be undertaken progressively after each phase of the construction activities to reduce impacts to flora and vegetation over time, including potential fragmentation. This will be undertaken in accordance with Fortescue's standard procedures including Rehabilitation and Revegetation Monitoring Procedure (Reference: 45-GU-EN-0009).● Amenity:<ul style="list-style-type: none">○ Fortescue is committed to mitigating noise exceedances at the Bonney Downs Homestead through the implementation of appropriate mitigation measures including potential modifications to the IDF design, such as the removal of turbines near the homestead, and/or the operational adjustment of wind farm turbines to ensure noise levels remain within the prescribed thresholds during operation,○ Use of dust suppression to manage dust generation from construction activities, access roads and cleared areas,○ Use of water sprays to manage dust generation from material transport and stockpiling,○ Complete relevant dust assessments/modelling to identify potential impacts to dust sensitive sites in high-risk areas,○ Limit the number and height of stockpiles, and○ Vehicles confined to designated routes with speed limits strictly enforced.
Outcomes	<p>SS-1 Environmental Outcome: No unauthorised disturbance to Aboriginal cultural heritage sites in the development envelope, unless consent is granted to disturb that site under WA legislation which specifically relates to Aboriginal heritage and has required informed consultation with relevant Traditional Owners.</p> <p>SS-2 Environmental objective: The proponent must undertake ongoing consultation and engagement with relevant Traditional Owners about the achievement of the outcomes and objectives SS-1, FV-5 and TF-3 for the life of the proposal. The proponent must take reasonable steps to consult with relevant Traditional Owners when revising the following environmental management plans: (1) Bonney Downs Environmental Management Plan (2) Bonney Downs Bird and Bat Adaptive Management Plan</p> <p>SS-3: Environmental outcome: Subject to implementation of health and safety protocols, no interruption of ongoing access to land utilised for traditional use or custom by relevant traditional owners.</p>



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ABBREVIATIONS

Abbreviation	Definition
ABN	Australian Business Number
ABS	Australian Bureau of Statistics
ACHIS	Aboriginal Cultural Heritage Inquiry System
AEP	Annual Exceedance Probability
AH Act	<i>Aboriginal Heritage Act 1972</i>
AHD	Australian Height Datum
ALA	Atlas of Living Australia
ANZG	Australian and New Zealand Guidelines
APLIC	Avian Power Line Interaction Committee
ARI	Assessed on Referral Information
ARU	Autonomous recording units
ASS	Acid Sulfate Soil
BAM Act	<i>Biosecurity Agriculture and Management Act 2007</i>
BBMP	Bird and Bat Management Plan
BBSUS	Bird and Bat Site Utilisation Survey
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDS	Bonney Downs Stations
BESS	Battery Energy Storage Systems
BIF	Banded Iron Formation
BoM	Bureau of Meteorology
CAMBA	China-Australia Migratory Bird Agreement
CEMP	Construction Environmental Management Plan
CEO	Chief Executive Officer
CO ₂	Carbon Dioxide
CO ₂ -e	Carbon Dioxide Equivalent
CoA	Commonwealth of Australia
COI	Cytochrome C oxidase subunit I
CPI	Consumer Price Index
CR	Critically Endangered
Critical habitat	Habitat critical to the survival of a species
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity Conservation and Attractions
DCCEEW	Department of Climate Change, Energy the Environment and Water
DE	Development Envelope
DEC	Department of Environment and Conservation
DEED	Department of Energy and Economic Diversification
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety



Abbreviation	Definition
DER	Department of Environmental Regulation
Development Envelope	The maximum area within which the footprint for the Proposal will be located
DEWHA	Department of the Environment, Water, Heritage and the Arts
DMA	Decision Making Authority
DMPE	Department of Mines, Petroleum and Exploration
DoE	Department of Environment
DoW	Department of Water
DPaW	Department of Parks and Wildlife
DPIRD	Department of Primary Industries and Regional Development
DNA	Deoxyribonucleic acid
DPLH	Department of Planning, Lands, and Heritage
DWER	Department of Water and Environmental Regulation
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EN	Endangered
EP Act	<i>Environmental Protection Act 1986</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERD	Environmental Review Document
ESA	Environmentally Sensitive Area
Fortescue	Fortescue Limited
GDE	Groundwater Dependent Ecosystem
GDV	Groundwater Dependent Vegetation
GED	Green Energy Division
GL	Giga litre
GNH	Great Northern Highway
GOS	Groundwater Operating Strategy
GoWA	Government of Western Australia
GW	Gigawatts
GWL	Groundwater Licence
ha	Hectare
HBI	Harry Butler Institute
HRZ	Heritage Restrictions Zone
HSC	Heritage sub-committee
IBRA	Interim Biogeographic Regionalisation for Australia
IDF	Indicative Disturbance Footprint – The indicative location where ground disturbance for the physical elements of the Proposal will occur. The extent of this footprint is used to



Abbreviation	Definition
	determine impacts. The spatial location of this footprint may vary as the design is refined.
IRR	Impact Reconciliation Report
IUCN	International Union for Conservation of Nature
JAMBA	Japan-Australia Migratory Bird Agreement
JTSI	Department of Jobs, Tourism, Science and Innovation
km	kilometres
KNAC	Karlka Nyiyaparli Aboriginal Corporation
kV	Kilovolt
LCU	Landscape Character Unit
L/s	Litres per second
m	metre
mbgl	Metres Below Ground Level
MDCP	Mining Development and Closure Proposal
Met Mast	Meteorological Mast
MI	Migratory
ML	Mega litre
mm	Millimetre
MNES	Matter of National Environmental Significance
MS	Ministerial Statement
MW	Megawatt
NESP	National Environmental Science Program
Noise Regulations	Environmental Protection (Noise) Regulations 1997
NSW	New South Wales
NT	Northern Territory
Nyiyaparli	The native title holders, knowledge holders, or representatives of the Nyiyaparli People
OS	Other Specially Protected
P	Priority
Palyku	The native title holders, knowledge holders, or representatives of the Palyku People
PEC	Priority Ecological Community
PEG	Pilbara Energy (Generation) Pty Ltd
PEOF	Pilbara Environmental Offsets Fund
PJAC	Palyku-Jartayi Aboriginal Corporation
PLNB	Pilbara Leaf-nosed Bat
POI	Points of Interest
PV	Photovoltaic
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i>
RNTBC	Registered Native Title Body Corporate
ROKAMBA	Republic of Korea – Australia Migratory Bird Agreement



Abbreviation	Definition
RSA	Rotor Swept Area
SRE	Short-range Endemic
TEC	Threatened Ecological Community
TEK	Traditional Ecological Knowledge
TPFL	Threatened and Priority Flora Database
TSSC	Threatened Species Scientific Community
UV	Ultraviolet
VIA	Visual Impact Assessment
VMO	Visual Management Objective
VU	Vulnerable
WA	Western Australia
WAPC	Western Australian Planning Committee
WG	Working Group
WTG	Wind Turbine Generators



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1 INTRODUCTION

Pilbara Energy (Generation) Pty Ltd (PEG), a wholly owned subsidiary of Fortescue Limited (Fortescue), is proposing to develop the Bonney Downs Wind Farm, comprising a wind farm and associated supporting infrastructure (the Proposal). The Proposal is located approximately nine kilometres (km) southwest of Nullagine (at the northern extent of the Proposal) in the Pilbara region of Western Australia (WA) (Figure 1-1). The southern boundary of the Proposal is approximately six km from Fortescue's Christmas Creek Iron Ore Mine Expansion project (Ministerial Statement (MS) 1033 boundary).

The Proposal will involve the installation of up to 100 wind turbines and substations, with a target installed renewable energy capacity of approximately 2.1 GW. The actual power generation of the Proposal may differ to the target capacity, depending on the efficiency of the turbine equipment once installed and throughout the life of the Proposal. The Proposal includes a Development Envelope (DE) of 89,973.86 ha within which an Indicative Disturbance Footprint (IDF) of 944.07 ha is anticipated.

Separately to this Proposal, Fortescue is developing the Nullagine Pilot Wind Farm (the Pilot). The Pilot comprises up to 17 wind turbines, 50 km of 220 kV transmission line to Christmas Creek Mine and associated electrical connection works and has been progressed under separate State approvals (Clearing Permit CPS 11067/1 issued under Part V of the *Environmental Protection Act 1986* and Mining Development and Closure Plan REG ID 500678 approved under the *Mining Act 1978*). The Pilot is a stand-alone proof-of-concept project with independent purpose and utility. It will generate operational data and learning to inform future decision-making on larger developments, while also replacing the requirement for diesel powered generators at Christmas Creek mine.

For the avoidance of doubt, the Pilot is not a staged "first phase" or component of the Bonney Downs Wind Farm and is excluded from the Bonney Downs referral and associated Development Envelope for the purposes of this ERD. The Pilot is shown on figures in this ERD for context only and, where relevant in the body of the ERD, the Proposal assessment adopts a conservative approach to cumulative and facilitated impacts that includes the existence of the Pilot as existing environment. Notwithstanding this exclusion, Fortescue confirms that the Bonney Downs project may connect to the Pilot 220 kV transmission line at the Pilot's nominated grid connection point, subject to the commitments and safeguards described in this ERD.

The Proposal will also include temporary infrastructure such as fuel storage, construction laydown areas, site offices, and permanent supporting infrastructure such as, accommodation camps, operations support offices, communications towers, landfill facilities, and a series of access roads and corridors for overhead electrical reticulation.

Water infrastructure for the Proposal may be required, including turkey's nests, abstraction bores and pipelines. Fortescue has an existing 5C groundwater licence (GWL) to take water under the *Rights in Water and Irrigation Act 1914* (RIWI Act) (GWL171278(7)) that will be sufficient for the supply of water for construction and operation of the Proposal. The existing production bores will supply the Proposal's construction, operational (i.e., road and corridor maintenance) and potable water (with the use of water treatment) requirements.

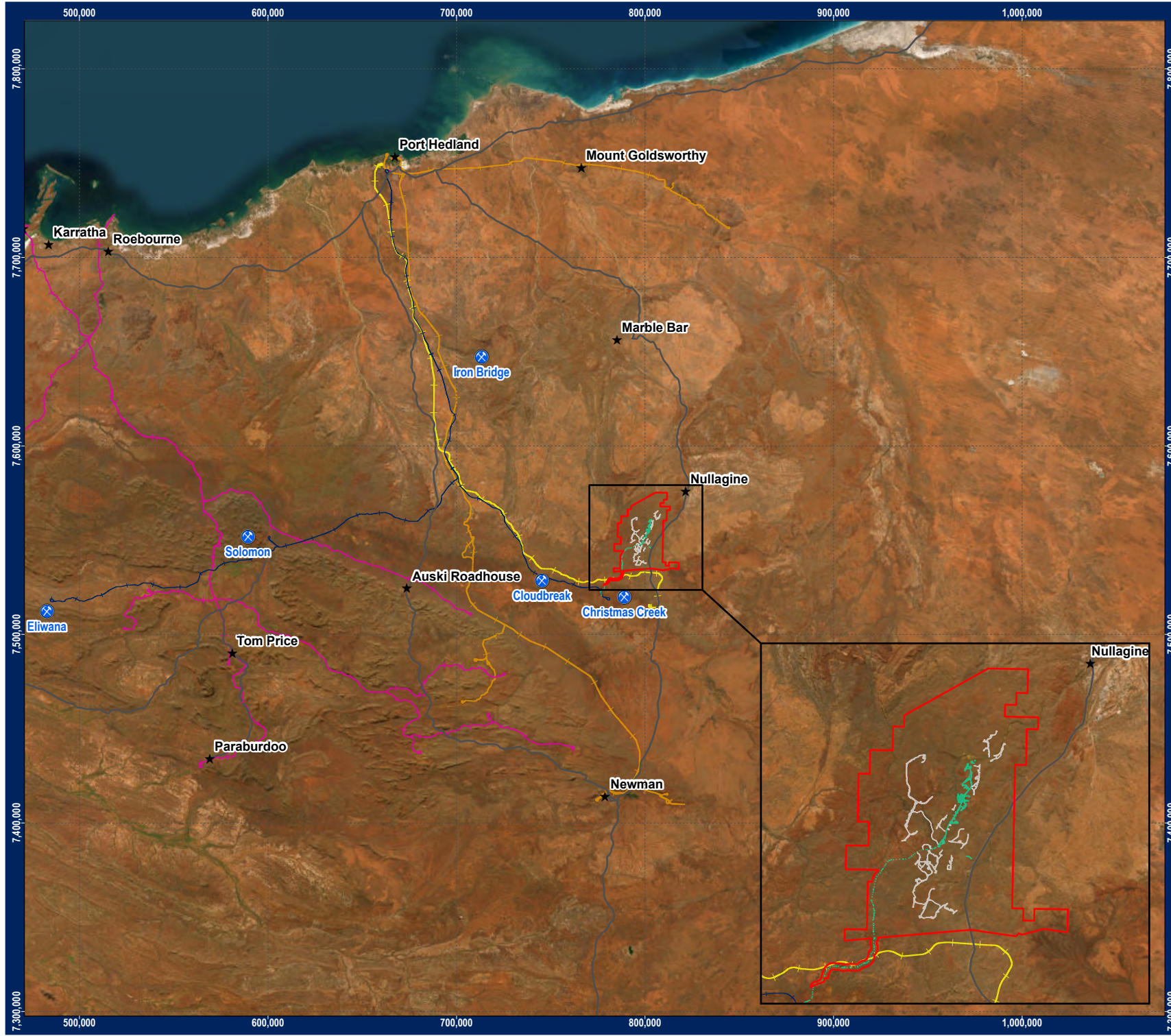
The spacing and proposed design layout of the proposed wind turbines has been informed by an assessment of existing topography, environmental and heritage constraints, and the continued collection of wind and climate data by Fortescue, specific to the Proposal site. Site data has been used to undertake energy modelling for the wind farm, with wind turbines



positioned to optimise efficiency and power output. It should be noted that as the design and assessment process has progressed, Fortescue have implemented the mitigation hierarchy, and the Proposal has been substantially reduced to avoid impacts where possible. This has included significantly reducing the number of turbines from 200 to 100 and implementation of large areas of exclusion zones around critical fauna habitat throughout the DE. As such, the IDF for the Proposal is less than half that of the originally proposed design.



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- Legend**
- Development Envelope
 - Indicative Disturbance Footprint
 - Approved Disturbance (Nullagine Pilot Wind Farm)
 - ★ GOV Towns
 - Major Roads
 - + Fortescue Rail
 - + BHP Rail
 - + Rio Tinto Rail
 - + Roy Hill Rail

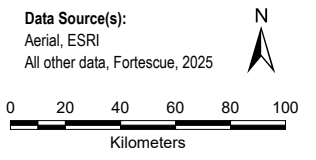


Figure 1-1
 Proposal Location

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 1
Approved By:	Confidentiality: 0
Scale: 1:2,750,000	
Coordinate System: GDA 1994 MGA Zone 50	
Project Name: 4519OP002_MP_EN_0093_PartIV	
Document Name: 4519OP002_MP_EN_0093_001_r1_ProjectLocation	

Fortescue accepts no liability and gives no representation or warranty, express or implied, as to the information provided including its accuracy, completeness, merchantability or fitness for purpose.





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1.1 Purpose and Scope

The purpose of this Environmental Review Document (ERD) is to present an Environmental Impact Assessment (EIA) of the Proposal to support the referral of the Proposal to the Environmental Protection Authority (EPA) under section 38 of the *Environmental Protection Act 1986* (EP Act). This ERD has been prepared in accordance with the EPA's *Instructions on how to prepare an Environmental Review Document* (EPA, 2024a) and is based on project and study information available at the time of writing.

1.2 Proponent Details

Pilbara Energy (Generation) Pty Ltd (PEG) is the Proponent of the Bonney Downs Wind Farm Proposal, as detailed in Table 1-1.

Table 1-1: Proponent Details

Proponent	
Australian Business Number (ABN)	31 631 303 305
Registered Address	Ground Floor, 256 St Georges Terrace, Perth WA 6000
Proponent Representative	
Name	[REDACTED]
Position	[REDACTED]
Email	[REDACTED]
Proponent Contact	
Name	[REDACTED]
Position	[REDACTED]
Email	[REDACTED]



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2 LEGISLATIVE CONTEXT

2.1 Environmental Impact Assessment Process

2.1.1 *Environmental Protection Act 1986*

The EP Act is the key legislative tool for environmental protection in Western Australia (WA). The EP Act provides for the prevention, control and abatement of pollution and environmental harm; and for the conservation, preservation, protection, enhancement and management of the environment. The Proposal has been referred under Part IV, section 38 of the EP Act.

This document has been prepared in accordance with the Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2024 (Government Gazette No. 153), the Procedures Manual (EPA, 2024b) and the Instruction: How to Prepare an Environmental Review Document (EPA, 2024a) to provide sufficient information for the EPA to assess this Proposal at Referral Stage.

This ERD is a supporting document describing the specific studies and investigations conducted by Fortescue in relation to the preliminary key environmental factors and has been prepared to a standard consistent with that of similar Environmental Reviews for mining developments in WA.

2.1.2 *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

If a Proposal is likely to have a significant impact on a Matter of National Environmental Significance (MNES) it requires approval from the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Proposal will be referred to the Commonwealth under the EPBC Act due to potential impacts on MNES.

If the action is determined to be a Controlled Action, the action may be assessed in accordance with section 87 of the EPBC Act. Fortescue will not seek an accredited assessment if the action is determined to be a Controlled Action.

2.2 Other Approvals and Regulation

The Proposal will be required to comply with the requirements of relevant State legislation and regulations as shown in Table 2-1.



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Table 2-1: Other Approvals and Regulations

Decision making authority	Legislation	Type of approval	Proposed Activity	Can process mitigate impacts on environment?
Department of Water and Environmental Regulation (DWER)	EP Act (Part V)	Works Approvals and Operating Licences	<p>Construction and operation of prescribed activities and premises.</p> <p>The Proposal includes the construction and operation of a new landfill, concrete batching plant, wastewater treatment plant, on-site mobile crushing and screening plant, and other supporting infrastructure which may require approval from DWER of applications for works approvals/licences under Part V of the EP Act.</p>	<p>Yes</p> <p>Decision Making Authority (DMA) can mitigate potential impacts to Inland Waters, Flora and Vegetation, Terrestrial Fauna, Terrestrial Environmental Quality, Social Surroundings, Human Health and Air Quality.</p> <p>Works Approvals and Licences regulate emissions and discharges to air, land or water and apply to 'prescribed premises' categories defined in Schedule 1 of the Environmental Protection Regulations.</p> <p>Assessment of the Works Approval and subsequent Licence applications includes a risk assessment of the identified emissions and discharges and their potential to cause environmental harm.</p> <p>Applications are open for public comment, and the public and licence holder can appeal decisions. DWER will seek comments and advice from people and public authorities deemed to be interested during the assessment.</p> <p>Assessments consider the environmental risk, public health and amenity and the controls proposed to mitigate these risks.</p> <p>Compliance monitoring and reporting are included in standard conditions of approval.</p>
	RIWI Act	5C and 26D Licences.	Groundwater abstraction for dewatering during construction and abstraction of construction water. Fortescue's existing licence (GWL171278(7)) will be used to abstract groundwater for the Proposal.	<p>Yes</p> <p>DMA can mitigate impacts to Inland Waters.</p> <p>RIWI Act licences set limits on the location and quantity of water abstraction to ensure impacts to groundwater levels and quality are minimised. Relevant licences related to the Proposal include licence to:</p> <ul style="list-style-type: none"> • Take water (a 5C groundwater or surface water licence), and • Construct wells, including bores and soaks (a 26D licence).



Decision making authority	Legislation	Type of approval	Proposed Activity	Can process mitigate impacts on environment?
				<p>As part of the consenting process, impacts on the water environment will be considered and assessed. These licences are legal documents with terms, conditions and limits which must be complied with.</p> <p>Abstraction of groundwater at the project site is permitted under the conditions of 5C licence GWL171278(7) and associated Groundwater Operating Strategy (GOS) ref.BC-16018-RP-HY-0001.</p> <p>The GWL allows for abstraction of 1.009 Gigalitre (GL)/yr, whilst abstraction impacts must be monitored and managed in accordance with the GOS. The GOS contains trigger levels for groundwater bore levels and quality, as a mechanism to prevent or minimise the impacts of abstraction on environmental receptors and other groundwater users.</p>
	RIWI Act Rights in Water and Irrigation Regulations 2000	Surface water permits (Bed and Banks Permit)	Construction of watercourse crossings and/or floodway which will disturb the banks of rivers and multiple creeks.	<p>Yes</p> <p>DMA can mitigate some potential impacts to Inland Waters. Permit applications consider the effect of the alteration to existing surface water catchments, surface water flow paths and sheet flow</p> <p>Conditions will be set with respect to the disturbance of waterway beds and banks (including vegetation clearing and surface water management). As part of the consenting process, impacts on the water environment will be considered and assessed.</p>
Department of Planning, Lands, and Heritage (DPLH)	<i>Aboriginal Heritage Act 1972</i> (AH Act)	Section 18 Ministerial Consent	Potential disturbance of Aboriginal heritage sites.	<p>Yes</p> <p>DMA can mitigate potential direct impacts to Aboriginal heritage sites.</p> <p>The assessment of direct impacts to heritage values will be completed under the AH Act.</p> <p>Fortescue is committed to minimising impacts on Heritage Places in all of its project areas which includes wherever possible avoidance of impacts on Heritage Places. Where the Proposal cannot avoid impact to Heritage Places or potential Heritage Places, Fortescue will consult with Palyku and</p>



Decision making authority	Legislation	Type of approval	Proposed Activity	Can process mitigate impacts on environment?
				<p>Niyaparli and apply for relevant approvals under the AH Act. Fortescue will comply with the AH Act and any approval conditions set by the Minister for Aboriginal Affairs at all times during construction and operation of the Proposal.</p> <p>Prior to submitting a Section 18 notice (if required), consultation with the Palyku-Jartayi Aboriginal Corporation and Karlka Niyaparli Aboriginal Corporation is required on:</p> <ul style="list-style-type: none"> • The location, importance and significance of any Aboriginal heritage being impacted, • Management of any Aboriginal heritage being impacted, and • Comments on the Section 18 application (if required), including any objection, support and/or any suggested conditions and mitigation strategies. <p>This consultation process is required by the Minister and Aboriginal Cultural Heritage Committee when evaluating the s18 submission.</p>
Department of Biodiversity Conservation and Attractions (DBCA)	<i>Biodiversity Conservation Act 2016</i> (BC Act)	s40 Ministerial Authorisation	Clearing or disturbance of Threatened flora or fauna species.	<p>Yes</p> <p>DMA can mitigate potential impacts to Flora and Vegetation and Terrestrial Fauna.</p> <p>The authority to issue a licence to take (flora and fauna) is assessed to determine whether the impact to the species or community will result in a significant impact.</p> <p>Applications for a section 40 authorisation that are associated with a wildlife licence type as defined in Part 4 of the Biodiversity Conservation Regulations 2018 will be considered against the requirements outlined in regulation 76. All applications will be considered in the context of the object of the BC Act in section 3(1)(a) to conserve and protect biodiversity and biodiversity components in the State.</p> <p>The BC Act provides the ability to impose conditions on authorisations to take Threatened species that mitigate or offset the impact of such action, as provided for in section 41 of</p>



Decision making authority	Legislation	Type of approval	Proposed Activity	Can process mitigate impacts on environment?
Department of Health DWER	<i>Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974</i> EP Act	Health approvals	Operation of wastewater treatment facilities at construction and operation camps.	<p>the BC Act of the relevant species in the state and on relevant habitat.</p> <p>Yes DMA can mitigate potential impacts to Flora and Vegetation and Terrestrial Fauna. Sets conditions with respect to the construction and operation of wastewater treatment facilities to maintain human health standards and minimise impacts to the environment, including effluent quarter quality requirements and conditions in relation to reuse or irrigation of treated effluent. This minimises potential environmental risks or impacts from this activity.</p>
Department of Mines, Petroleum and Exploration (DMPE) (formerly Department of Energy, Mines, Industry Regulation and Safety (DEMIRS))	<i>Mining Act 1978</i>	Mining proposal approval	Development on a tenement granted under the <i>Mining Act 1978</i> .	<p>Yes DMA can mitigate some potential impacts to Inland Waters, Flora and Vegetation, Terrestrial Fauna and Terrestrial Environmental Quality on tenements granted under the <i>Mining Act 1978</i>.</p> <p>Mining Proposals address all Proposal elements and activities and consider the likely environmental impacts within an 'Environmental Group Site' (a grouping of mining tenements that make up a mining operation). DMPE aims to assess factors not regulated elsewhere (e.g., key environmental factors assessed under Part IV of the EP Act).</p> <p>The mining proposal must include an environmental risk assessment, site-specific environmental outcomes and a description of the management system that will be implemented to appropriately manage all environmental risks.</p> <p>Approval of a Mining Proposal will usually include environmental monitoring and reporting requirements. For example, the Nullagine Pilot Wind Farm has been granted approval through a Mining Development and Closure Plan (REG ID 500678) approved under the <i>Mining Act 1978</i>, which conditions implementation of a specific Bird and Bat Adaptive Management Plan (BBAMP) to mitigate and monitor potential collision impacts with avifauna.</p>



Decision making authority	Legislation	Type of approval	Proposed Activity	Can process mitigate impacts on environment?
	EP Act - DMPE has delegated authority to administer the native vegetation clearing provisions for activities regulated under the <i>Mining Act 1978</i>	Native Vegetation Clearing Permit	Impacts associated with the clearing of native vegetation can be regulated under the EP Act Framework (Part V Division 2), however is administered by DMPE for activities regulated under the <i>Mining Act 1978</i> .	<p>Yes</p> <p>Clearing of native vegetation in Western Australia is predominantly regulated under the EP Act. An authorisation under Part V of the EP Act is required to clear Native Vegetation, however, is administered by DMPE for activities regulated under the <i>Mining Act 1978</i>, with specific rules for mining leases, often requiring a Purpose Permit or Area Permit depending on land tenure.</p> <p>As part of the NVCP application, the Proposal will be assessed against the clearing principles, which prioritise avoiding clearing, then minimising impacts, and finally reducing residual environmental harm through actions like vegetation offsets. DMPE assesses applications against these ten principles, which cover impacts on high-value biodiversity, significant habitats, rare and threatened species, remnant vegetation, waterways, soil, and neighbouring conservation areas.</p> <p>For example, the Nullagine Pilot Wind Farm has been progressed under separate State approvals (Clearing Permit CPS 11067/1) issued under <i>Part V of the Environmental Protection Act 1986</i> which limits the amount of clearing to approved areas and conditions specific mitigation measures to minimise potential impacts on flora, vegetation and fauna.</p>
	<i>Dangerous Goods Safety Act 2004</i>	Security sensitive ammonium nitrate storage licence Dangerous goods storage licence	Ammonium nitrate facility.	<p>Yes</p> <p>DMA can mitigate some potential impacts to Inland Waters and Terrestrial Environmental Quality.</p> <p>Dangerous goods licence applications require completion of a risk assessment demonstrating the dangerous goods site can be operated with minimal risk to people, property and the environment.</p> <p>A licence to safely store ammonium nitrate as if it were an explosive.</p>
		Dangerous goods storage licence	Fuel storage.	<p>Yes</p> <p>DMA can mitigate some potential impacts to Inland Waters and Terrestrial Environmental Quality.</p>



Decision making authority	Legislation	Type of approval	Proposed Activity	Can process mitigate impacts on environment?
				<p>Dangerous goods licence applications require completion of a risk assessment demonstrating the dangerous goods site can be operated with minimal risk to people, property and the environment.</p> <p>Bulk fuel storage for the Proposal is estimated to be 110,000 litres, which exceeds the licensing threshold of 100,000 litres for combustible liquids.</p>



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3 THE PROPOSAL

3.1 Justification

The proposed installed capacity has been determined to be sufficient to ensure a robust and dependable power supply for Fortescue's mining operations. Effective oversight of both the generation and transmission networks will be critical in harmonising renewable energy production with operational demand and ensuring overall power system stability.

Investing in wind farms and other renewable energy sources is a strategic move that significantly contributes to Fortescue's ambition of reducing carbon emissions and advancing towards its 2030 'real-zero' carbon goal. This objective is centred on the complete elimination of Scope 1 and 2 emissions by phasing out fossil fuels from Fortescue's Australian iron ore operations.

In Financial Year 2023, Fortescue's operations, including Australian iron ore and marine vessels, emitted a total of 2.55 million tonnes of carbon dioxide equivalent (CO₂-e). This included 2.2 million tonnes CO₂-e from Scope 1 sources, primarily from diesel-heavy mobile equipment, haul trucks, and stationary power, and 0.35 million tonnes CO₂-e from Scope 2 sources, which are associated with power purchases. Addressing these emissions through the proposed renewable energy initiatives is not only a crucial step towards meeting Fortescue's sustainability targets but also demonstrates commitment to minimising environmental footprint and leading the industry in climate action.

This approach is essential for meeting the targets set out in the United Nations Framework Convention on Climate Change Paris Agreement and the 2021 Glasgow Climate Pact. The Proposal also aligns with the Commonwealth and State Governments' commitments to reduce greenhouse gas emissions and reach renewable energy targets.

3.1.1 Benefits of the Proposal

One of the benefits of the Proposal includes a reduction in emissions and progress toward decarbonisation. By replacing diesel and gas-fired stationary power with renewable sources, the Proposal is projected to cut emissions by at least 1.5 million tonnes CO₂-e annually. This represents a significant step toward Fortescue's goal of achieving 'real-zero' carbon emissions by 2030.

The Proposal will also reduce fossil fuel dependency. The proposed 2.1 GW of renewable energy capacity will provide a new power source for Fortescue's operations in the Pilbara, ensuring a consistent energy supply critical for continuous mining operations.

Investing in renewable energy can lead to significant long-term cost savings by reducing reliance on expensive and volatile fossil fuels. Further, transitioning to renewable energy can enhance operational efficiency by modernising power infrastructure and integrating advanced technologies, which can improve overall performance and reduce maintenance needs.

The Proposal will have a positive environmental impact, reducing the reliance on fossil fuels which lowers environmental pollution and mitigates climate change impacts, contributing to broader ecological benefits and helping to preserve natural resources.

The Proposal will be developed to maximise power generation through innovative selection of wind turbine equipment, focusing on turbines that are designed to be the most efficient at the



wind speeds measured on site, whilst also designed to minimise wake losses and systematic losses.

Lastly, through the 'real zero' carbon goal, Fortescue is setting a precedent and leading the mining industry by demonstrating a commitment to sustainability and potentially influencing other companies to adopt similar practices.

3.1.2 Options and Alternatives Considered

Renewable energy projects are critical for the decarbonisation of mining operations, and therefore alternatives for this Proposal were restricted to location options and the type of renewable project. The footprint of the Proposal was reduced by the selection of a wind renewable project instead of solar photovoltaic (PV) infill and batteries, as wind allows for 24-hour generation and has a smaller footprint, therefore resulting in less clearing of native vegetation.

The location of a Proposal such as this is constrained by the following factors:

- Wind speeds must be high and consistent,
- Low vegetation cover is preferred,
- A remote location with a large area,
- Proximity to existing operations and grid, and
- Road access suitable for construction and ongoing maintenance is required.

3.1.2.1 Alternative Power Generation Project

Fortescue has previously considered alternative power supply sources. The greenhouse gas emissions associated with these alternatives are at odds with the Paris Agreement, which aims to limit global warming to well below 2°C above pre-industrial levels. The alternatives were also inconsistent with the EPA's Greenhouse Gas Guidance (EPA, 2023d). Alternative power options to the Proposal include:

- Purchase of power from existing third-party power generation infrastructure, which is dominated by power stations with high greenhouse gas emissions,
- Continuous operation of the Solomon Gas-fired Power Station at full capacity, as well as commissioning of additional thermal generation to cover Fortescue's increased load, and
- Net and Real zero options include conversion of Solomon Power Station to run on green ammonia/hydrogen, however covering all energy that would be provided by a wind generation site is not economically viable due to the high cost of green ammonia as a fuel.

In addition, use of alternative renewable sources was considered in the form of solar PV infill in and around mining operations, however as discussed, this option was constrained by requiring a larger footprint and having reduced operating hours.



3.1.2.2 No Development Option

The 'No Development Option' would mean continuing with the existing power sources for Fortescue's mining operations in the region. Without advancing the Proposal, the anticipated benefits of switching to renewable energy would be lost, leading to ongoing carbon emissions, or an increase in carbon emission where additional power is required to support current operations and growth, and exacerbating global and local climate change through mining operations.

The Proposal forms part of Fortescue's Pilbara Energy Connect project, which represents a crucial step in addressing this issue and furthering Fortescue's decarbonisation goals by expanding the main power transmission infrastructure to create an integrated transmission network that will allow renewable electricity generated at any of Fortescue's sites to be shared across operations.

Under a 'no development' scenario, Fortescue's current and future operations would rely on current power sources, specifically on-site diesel and/or gas power stations, for the entire lifespan of the mines. This reliance would significantly impede Fortescue's efforts to achieve carbon neutrality across its operations by 2030, in line with the Paris Agreement's aim to limit global warming to well below 2°C compared to pre-industrial levels.

3.1.2.3 Proposal Site Selection

An analysis of publicly available wind data in the Pilbara was cross referenced with terrain profiles to identify areas which have the potential to support an economically viable wind farm. These potential areas were then further filtered by distance to Fortescue's existing infrastructure, tenure status, cyclone regions and identified social, heritage and environmental considerations. As a result, four potential site options were selected for further analysis. Due to commercial sensitivities, further detail cannot be provided.

Remote sensing devices were placed on each site to measure wind speed. A further site comparison process was conducted in March 2023 to identify which of the wind sites under consideration offered the lowest levelized cost of energy and to consider the schedule associated with each location. To achieve this, concept designs were produced for each site, the respective costs estimated, and the generation profiles calculated. These evaluations were used as inputs to a demand response model to determine the maximum renewable penetration for a set of given scenarios based on a predicted operational load.

The Proposal location was chosen as the preferred area for reasons including the following:

- It maintains the most favourable wind resource of the sites assessed which will assist in achieving Fortescue's decarbonisation targets and minimise the infrastructure required to be constructed. Fortescue commissioned a 148 metre (m) Meteorological Mast (Met Mast) onsite in October 2023 and this unit, combined with a ground monitoring unit onsite, has verified the DE is acceptable for wind power generation of the magnitude required,
- Relative proximity to Fortescue's existing mining operations, compared to other options,
- Lower cyclone risk compared to other locations as it is located further from the coast,



- The underlying land is of lower environmental value in comparison to other sites, due to native vegetation impacted by pastoral activities,
- Relatively flat terrain compared to other options which reduces construction costs, and
- Favourable transport and logistic options.

3.2 Proposal Description

3.2.1 Summary and Key Elements

The Proposal is for the construction and operation of a renewable energy wind generation hub, to power the Fortescue mining operations in the Pilbara region. The key elements of the Proposal are summarised in Table 3-1 and provided in the proposal content document (see Overview of the Proposal).

The total expected area of vegetation to be cleared for the Proposal is 944.07 ha (33.81 ha within the DE is previously cleared). Following completion of construction, 480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) will be rehabilitated, resulting in 443.39 ha of permanent clearing of native vegetation.

Table 3-1: Key Elements of the Proposal

Key elements	Proposed extent
Renewable infrastructure	Indicative Disturbance Footprint up to 944.07 ha Clearing of native vegetation up to 910.26 ha, including: <ul style="list-style-type: none"> • 443.39 ha of permanent clearing, and • 466.86 ha of temporary clearing.
Supporting electrical infrastructure	
Supporting infrastructure	
Water infrastructure	Construction water demand is ~850 ML/annum. Operational water demand is ~100 ML/annum (includes potable water use for the accommodation facilities and maintenance activities). Water for construction and operation of the Proposal will be abstracted under existing GWL171278(7).
Operation & maintenance	The operation phase of the Proposal is expected to commence in 2028 and will operate 24 hours per day.
Decommissioning & rehabilitation	Has an expected operational life of 25-30 years (with asset life extension, can operate indefinitely).

The Proposal will consist of the following elements, discussed in further detail below:

- Renewable energy generation infrastructure consisting of up to 100 wind turbines,
- Supporting electrical infrastructure consisting of:
 - 33 kV reticulation systems and collector substations,
 - Up to six 220/33 kV substations, and
 - Battery energy storage systems (BESS).



- Supporting infrastructure consisting of:
 - Corridors for overhead electrical reticulation,
 - Access tracks and internal roads,
 - Accommodation and associated wastewater treatment plant,
 - Hydrocarbon and chemical storage,
 - Landfill facilities,
 - Communication towers and in-ground fibre optic cabling,
 - Meteorological monitoring masts,
 - Laydown areas,
 - Site offices,
 - Borrow pits and on-site mobile crushing and screening plant,
 - Concrete batching facilities,
 - Ammonium nitrate facility,
 - Diesel electricity generation infrastructure, and
 - Topsoil stockpiles.

Separately to this Proposal, Fortescue is developing the Nullagine Pilot Wind Farm (the Pilot). The Pilot comprises up to 17 wind turbines and associated electrical connection works and has been progressed under separate State approvals (Clearing Permit CPS 11067/1 issued under Part V of the Environmental Protection Act 1986 and Mining Development and Closure Plan REG ID 500678 approved under the Mining Act 1978). The Pilot is a stand-alone proof-of-concept project with independent purpose and utility: it will generate operational data and learning to inform future decision-making on larger developments.

3.2.2 Renewable Energy Generation Infrastructure

The Proposal will involve the installation and operation of up to 100 wind turbines to harness wind energy for power generation.

It is anticipated that up to 2 ha of temporary clearing will be required to facilitate construction of each turbine. This temporary clearing is required as construction for each turbine, being up to 290m in height (to the tip of blade), requires access for cranes in order to hoist the turbine blades, nacelles, and towers.

Depending on the geotechnical characteristics of each turbine location, different foundation types will be utilised. These may include:

- A Nabrawind Self Erecting Tower (Nabralift) design may be utilised for the wind turbines. Nabralift contains a three-column framed structure installed under the



uppermost part of the tubular tower (an indicative Nabralift Tower is shown in Plate 3-1 and Plate 3-2). This option requires significantly less concrete than a traditional monopole,

- Mass gravity foundations requiring approximately 25 m diameter foundations that are approximately 4 m deep. These foundations are expected to have the largest volume of concrete required, consisting of approximately 1,100 m³ of concrete and requiring reinforcement and an anchor cage,
- Rock anchor foundations which require significantly less concrete. However, they require drilling to depths of up to 35 m. Approximately 25 bore holes with a diameter of 200 mm may be required for each of these foundations, and
- Piled foundations which will also require significantly less concrete than mass gravity foundations. However, they also require drilling to depths of up to 35 m. Approximately 12 bore holes, with a diameter of 1200 mm may be required for each of these foundations.

Earthing grids for each turbine will be installed in parallel to the foundation. Excess excavated material will be appropriately stored and used as fill where suitable or spread locally to tie into the existing landscape, within the IDF area.

During operations, turbines will have a permanent footprint of up to 1 ha per turbine. Turbines will be arranged in rows that are spaced and orientated to maximise power generation. An IDF is provided in Table 3-1 and Figure 3-1. The final wind farm design will be completed following studies of environmental and heritage constraints. It is anticipated that there will be sufficient flexibility within the wind farm design to enable micro-siting to avoid environmental or heritage constraints additional to those identified in this ERD.



Plate 3-1 Nabralift Tower Construction



Plate 3-2 Nabralift Tower



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- Legend**
- Development Envelope
 - Indicative Disturbance Footprint
 - Approved Disturbance (Nullagine Pilot Wind Farm)
 - ★ GOV Towns
 - Major Roads
 - + Fortescue Rail
 - + Roy Hill Rail

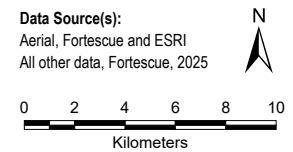


Figure 3-1
 Indicative Disturbance Footprint

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 1
Approved By:	Confidentiality: 0
Scale: 1:300,000	
Coordinate System: GDA 1994 MGA Zone 50	
Project Name: 4519OP002_MP_EN_0093_PartIV	
Document Name: 4519OP002_MP_EN_0093_002_r1_IDF	

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3.2.3 Supporting Electrical Infrastructure

Supporting electrical infrastructure for the Proposal will include infrastructure for distribution and control, and energy storage.

3.2.3.1 Distribution and Control Associated with Wind Turbines

Each wind turbine will have associated infrastructure to support the safe transmission of energy from the turbine via overhead electrical reticulation and substations to Fortescue Integrated Power Network. Onsite energy storage will be located near substations along the network.

All wind turbines will be connected via 33 kV reticulation systems to collector substations, so that electrical power generated by the wind turbines can be collected. The 33 kV reticulation consists mainly of overhead lines with short sections of underground cables at each end of the lines to the wind turbine electrical kiosk.

The typical height of the 33 kV electrical reticulation that Fortescue currently employs across operations is 30 m. It incorporates steel poles with an average span length of 200 m (between the poles). An approximate 6 m wide access track may be cleared for the construction and maintenance of the overhead line where tracks do not already exist.

Each electrical reticulation pole will require a 20 x 20 m pad. The 33 kV overhead lines also require clearing of a 20 m-wide easement corridor, with the centre of the overhead line aligned with the centre line of the corridor.

3.2.3.2 Connection to Fortescue's Power Network and Energy Storage

Fortescue is currently developing the Nullagine Pilot Wind Farm, consisting of 17 turbines and approximately 50 km 220 kV transmission line to Christmas Creek Mine. The Pilot is a stand-alone proof-of-concept project with independent purpose and utility, generating operational data and learnings to inform future decision-making on larger developments.

The wind farm will be connected via up to six 220/33 kV substations located within the DE, to the 220 kV transmission line constructed as part of the Nullagine Pilot Wind Farm. All 220/33 kV collector substations at the wind farm are proposed to be interconnected in a ring configuration.

The substations require a 120 x 120 m pad. An additional temporarily cleared area of approximately 50 x 100 m is required for construction of each pad, which will be rehabilitated once construction is completed.

All substations will be fenced and are proposed to be equipped with gas-insulated 220 kV switchgear, which allows the substation footprint to be smaller compared to air-insulated technology. The internal transmission corridors will include an access track for maintenance and will be located to maintain clearance from other infrastructure, to minimise interruption of the prevailing wind.

BESS are proposed to be located at substations for the storage of energy to help balance load requirements throughout the transmission network.



3.2.4 Water Infrastructure

Fortescue has an existing 5C licence to take water (GWL171278(7)) that will be sufficient for the supply of water for construction and operation of the Proposal. The existing production bores will supply the Proposal's construction, operational (i.e., road and corridor maintenance) and potable water (with the use of water treatment) requirements. Water demand will be greatest during construction largely associated with construction of concrete foundations for the wind turbines and buildings, and construction of access tracks, while operational requirements will be significantly less and will vary throughout the life of the Proposal dependent on the operational/maintenance activities.

Construction water demand is expected to be approximately 850 megalitre (ML)/annum. Operational water demand is approximately 100 ML/annum which includes potable water use for the accommodation facilities and maintenance activities associated with the Proposal infrastructure. Accommodation facilities are discussed further in Section 3.2.5.2.

Water infrastructure for the Proposal is likely to consist of storage infrastructure (such as turkey's nests) and pipelines to transport water from the existing production bores to the storage infrastructure. Water infrastructure will be accommodated within the proposed IDF.

3.2.5 Supporting Infrastructure

Further to the above, additional supporting infrastructure and facilities will be required for the Proposal as discussed in Paragraphs 3.2.5.1 to 3.2.5.12 and shown on Figure 3-2.

3.2.5.1 Access and Internal Roads

The main access to the Proposal is via Great Northern Highway (GNH) or Fortescue's Rail Maintenance Track (which runs parallel to the GNH), and the Shire of East Pilbara road network (including Hillside Woodstock Road, Marble-Bar Woodstock Road, Hillside-Marble Bar Road and Bonney Downs-Hillside Road), which will enable transport of turbines and other infrastructure to the Proposal from port facilities at Port Hedland. There are additional existing roads and access tracks that will allow for Proposal traffic and delivery Proposal components and materials. Marble Bar Road will also be used for transportation of machinery and materials to the Proposal.

An internal network of site access tracks will connect the infrastructure during construction and operational activities, which will connect to the public road network at a suitable location. Existing cleared roads and tracks will be used where possible.

New internal access tracks will be unsealed. The layout of the access roads will minimise the overall track length required to provide access to all turbines, while also balancing cut to fill quantities. Access tracks within the DE have been designed to avoid areas subject to flooding where practical. However, where crossings are required, surface water infrastructure (floodways and culverts) will be used to ensure flow volume and velocity is not unreasonably impeded.

Typically, access tracks required for construction may be approximately 20 m wide and suitable for two-way traffic, including allowances for batters, shoulders and drains. During operation, this width will be reduced to 6-10 m with the remainder rehabilitated. An example of access roads to the wind turbines is shown in Plate 3-3.



Plate 3-3 Access roads to the wind turbines

3.2.5.2 Accommodation

The Proposal will require an accommodation camp to house workers during construction and operations. During construction, the camp will have capacity for up to 1,000 personnel, which will reduce to an operational workforce capacity of up to 100 personnel. Areas cleared for the construction camp will be utilised for the operations camp. Where areas are not required for operations, they will be rehabilitated once construction activities are complete.

Wastewater will be processed through a wastewater treatment plant. The plant will produce effluent suitable for land irrigation and discharged through a spray field or reused for dust suppression purposes. This wastewater treatment plant will be subject to a Works Approval and Operating Licence under Part V of the EP Act.

The Proposal will utilise existing infrastructure and coexist with existing users of infrastructure wherever possible.

3.2.5.3 Hydrocarbon and Chemical Storage

Fuel storage and refuelling areas will be required for servicing construction vehicles, and maintenance vehicles during operations. Fuel for light vehicles and mobile plant will be stored on site.

All fuel will be stored in bunded facilities in a manner that complies with relevant environmental, health and safety regulations including the *Dangerous Goods Safety Act 2004*, Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007, and Australian Standard AS1940-2004: The storage and handling of flammable and combustible liquids (AS1940). Consideration will be given to alternative fuel sources for on-site vehicles over time in line with Fortescue's decarbonisation strategy and commitments.



3.2.5.4 Waste Management

Waste management for the Proposal will seek to minimise the generation of waste and the disposal of waste to landfill, which may include making use of regional recycling facilities. An on-site landfill facility will be required for disposal of solid waste that cannot be otherwise appropriately managed. Although the location of the landfill facility has not been determined at this stage of the design process, the expected clearing requirements have been accounted for within the IDF, and no additional clearing is anticipated to be required.

As discussed in Section 3.2.5.2, a wastewater treatment plant will also be constructed to treat wastewater associated with the accommodation camp, which has been accounted for within the IDF.

3.2.5.5 Communications

Communication towers supporting radio, telephone and internet will be installed to support operational requirements. In-ground fibre optic cabling will also be installed within the IDF area.

3.2.5.6 Weather Monitoring

Several meteorological monitoring masts of up to 200 m in height may also be constructed within the DE to support ongoing operations.

3.2.5.7 Temporary Infrastructure

During construction, various temporary works will be required for the Proposal such as fuel storage, construction laydown areas and site offices. At completion of the construction works, all construction facilities that are no longer required for operational purposes will be removed and the areas rehabilitated.

3.2.5.8 Laydown Areas

Laydown areas will be required to store and stage wind turbine modules and electrical infrastructure modules as part of the installation and assembly process. These areas will be sited with consideration of environmental and heritage values during detailed construction planning. Some laydown areas utilised during construction will become permanent offices and associated ablutions during operation of the Proposal. Laydown areas will be rehabilitated once no longer required.

3.2.5.9 Borrow Pits

The Proposal will require suitable fill material (aggregate and rock) for construction of roads, pads, hardstand and laydowns. Sourcing of aggregate and rock will be informed by the results of geotechnical investigations and in agreement with key stakeholders including Traditional Owners. It is proposed that aggregate and rock be processed through an on-site mobile crushing and screening plant.

3.2.5.10 Dangerous Goods and Storage

An ammonium nitrate facility is proposed to store explosive materials required for quarrying and excavation in hard rock during construction. Storage facilities will be located to meet required separation distances for safe storage of dangerous goods in line with the Safe Storage of Solid Ammonium Nitrate code of practice (DMIRS, 2021). The ammonium nitrate facility will require a security sensitive ammonium nitrate storage licence and potentially a



dangerous goods storage licence if the amount of security sensitive ammonium nitrate stored exceeds manifest quantities (DMIRS, 2021).

3.2.5.11 Temporary Power Supply

The Proposal considers the need for power supply during construction of up to 4 megawatts (MW) of instantaneous load, which is likely to be provided by diesel electricity generation infrastructure. Fortescue will develop and apply approaches to continue to reduce emissions from its construction activities, utilising renewable energy where practicable.

3.2.5.12 Topsoil Stockpiles

Clearing of vegetation and topsoil is required to construct and install the proposed infrastructure. Vegetation and topsoil will be stripped and stored separately in designated stockpiled areas and used to progressively rehabilitate temporarily disturbed areas following completion of construction activities.



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Legend

Development Envelope	Supporting Infrastructure
Turbine Locations	Laydown
GOV Towns	Fuel Storage
Major Roads	Explosive Storage
Fortescue Rail	Borrow Areas
Roy Hill Rail	Maintenance Area
Indicative Disturbance Footprint	Material Stockpiles
Approved Disturbance Footprint (Nullagine Pilot Wind Farm)	Site Office
	Substations
	Turkeys Nests

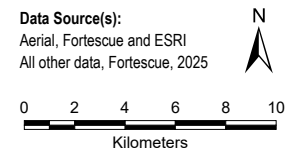


Figure 3-2
 Supporting Infrastructure
 of the Proposal

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 1
Approved By:	Confidentiality: 0
Scale: 1:300,000	
Coordinate System: GDA 1994 MGA Zone 50	
Project Name: 4519OP002_MP_EN_0093_PartIV	
Document Name: 4519OP002_MP_EN_0093_003_r1_Supporting_Infra	

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3.2.6 Proposal Timelines

The Proposal is a critical component of Fortescue's decarbonisation commitments for achieving net-zero emissions from mining operations by 2030.

Construction works will commence following the receipt of all necessary approvals which has been estimated to be late 2026. Construction activities are expected to take approximately 34 months. Generation and electrical transmission infrastructure will be progressively commissioned during construction.

It is anticipated that renewable energy generation and supporting electrical infrastructure will be maintained and then replaced at the end of the infrastructure's operational life. The proposed lifespan of the Proposal (approximately 25-30 years) is based on the tenure duration of miscellaneous licences under the *Mining Act 1978*. However, the operational lifespan of the Proposal is anticipated to be longer as the wind resources are expected to be available at the Site for the foreseeable future. Should an extension be required, appropriate approvals will be sought.

3.2.7 Operation and Maintenance

The operation phase of the Proposal is expected to commence in 2028 and will operate 24 hours per day. Operational personnel will consist of a local workforce that reside in an accommodation camp. Activities associated with the operational and maintenance phase include:

- Operation of wind farm and supporting electrical infrastructure (including re-powering),
- Transfer of wind generation energy via substations to the Fortescue Integrated Power Network,
- Dangerous goods storage/chemical system and hazardous materials and waste handling,
- Groundwater abstraction (included in existing licence),
- Treatment of groundwater,
- Raw and demineralised water storage in above ground tanks,
- Maintenance of permanently cleared vegetation, and
- Maintenance of access tracks and internal roads.

3.2.8 Decommissioning and Rehabilitation

The Proposal is expected to operate up to 25-30 years and, with asset life extension (including turbine replacement and repowering), can operate indefinitely. It is intended to restore the environmental values of the Proposal area following the lifespan of the Proposal. Requirements for decommissioning will be established through consultation with relevant stakeholders. A decommissioning management plan will be developed in the years leading up to decommissioning the Proposal.



Rehabilitation will be undertaken for the Proposal following Fortescue's Rehabilitation guideline (45-GU-EN-0009). Progressive rehabilitation will be undertaken during the construction phase, including the rehabilitation of temporary cleared areas following completion of construction activities within specific locations of the wind farm. Rehabilitation will be undertaken once construction has been completed within separate construction areas, rather than after completion of the construction of the entire wind farm. Rehabilitation activities will include all temporary pads and tracks reprofiled back to the natural hillside/terrain, and any excavations backfilled and recontoured to achieve a gentle slope consistent with the surrounding natural landscape, to reduce erosion. Vegetation and topsoil removed during construction will be spread over cleared areas, and all potentially contaminated soil will be removed to an appropriately licensed facility, and rubbish will be removed from the site and disposed of appropriately. All compacted areas will be ripped / scarified to loosen compacted soil and promote vegetation growth. Monitoring of rehabilitated areas will be undertaken during wind farm operations to ensure vegetation becomes self-sustaining.

At such a time as the Proposal is not required and has reached end of life, decommissioning activities will include:

- Agreements for Post-Development Land Use with relevant stakeholders,
- Removal of all infrastructure, vehicles and machinery, unless otherwise agreed with relevant stakeholders,
- Removal from site and recycling, or appropriate disposal, of all infrastructure and waste,
- Decommissioning or repurposing of production bores (covered under existing licence), and
- Rehabilitation / restoration of disturbed areas.

All decommissioning activities will be developed in consultation with relevant stakeholders for Post-Development Land Use. Agreements with stakeholders may include handover of certain Proposal infrastructure (such as access tracks). The responsibility for ongoing maintenance and eventual decommissioning of such Proposal infrastructure will then sit with the relevant stakeholder.

3.2.9 Exclusions

The scope of the Proposal excludes:

- The Nullagine Pilot Wind Farm, consisting of 17 turbines and approximately 50 km of 220 kV transmission line to Christmas Creek Mine.
- Geotechnical and hydrogeological investigations to provide technical data for the Proposal
- Environmental, heritage and other studies and investigations involving fieldwork.



3.3 Location and Regional Context

3.3.1 Physical Environment

3.3.1.1 Climate

The Pilbara is a semi-arid and arid region, which experiences approximately 300 mm of rainfall annually (McKenzie *et al.*, 2003). The weather station at Marble Bar (Site 004106) shows a long-term (from 2000 to 2024) annual rainfall of 386 mm, with rain experienced predominately in January, February and March (Bureau of Meteorology (BoM), 2024). Rainfall at the Christmas Creek mine site weather station shows a long term (2012 to 2022) annual rainfall of 401 mm. Annual mean temperatures within the region range from 12.1°C in winter to 42.1°C in summer (BoM, 2024). Plate 3-4 outlines the monthly rainfall and temperature averages for the Marble Bar station (BoM, 2024).

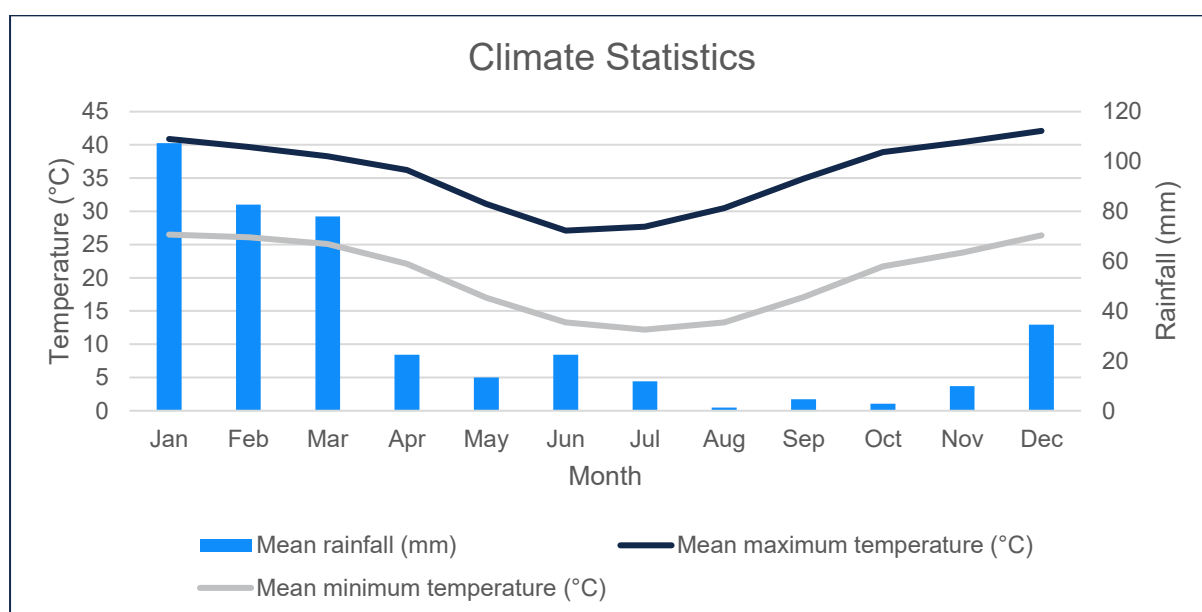


Plate 3-4 Marble Bar Climate Data (Site No. 004106) (BoM, 2024)

3.3.1.2 Geology, Soil and Land Systems

The Pilbara region is formed by a basement of Archaean granite and volcanics, overlain by massive deposits of Proterozoic sediments and volcanics (Semeniuk & Brocx, 2019). The DE comprises of nine geological units described in Table 3-2 and Figure 3-3 (DMIRS, 2018).

There are 12 land systems within the DE (DPIRD, 2022), of which Rocklea and Bonney systems covers more than 76% of the total DE (Table 3-3 and Figure 3-4).

Table 3-2: Geological Units in the Development Envelope (DMIRS, 2018)

Geological units	Description	Area within the DE (ha)	Proportion within the DE (%)
Black Range Dolerite Suite	Dolerite dyke; local gabbro; weakly metamorphosed	18.65	0.02%
Euro Basalt	Basalt, komatiitic basalt, serpentized peridotite; local dolerite and gabbro sills; minor	108.97	0.12%



Geological units	Description	Area within the DE (ha)	Proportion within the DE (%)
	felsic volcanoclastic rocks and chert; metamorphosed		
Golden Eagle Orthogneiss	Layered orthogneiss derived from tonalite, granodiorite, monzogranite, and pegmatite; includes layers and lenses of amphibolite and ultramafic schist	93.61	0.10%
Hardey Formation	Sedimentary and felsic volcanic rocks; local intrusive rocks	1,529.06	1.70%
Jeerinah Formation	Siliciclastic sedimentary rocks, mafic volcanic rocks and minor felsic volcanic rocks; local carbonate rocks, chert, and dolerite sills	1,697.19	1.89%
Kylena Formation	Massive, amygdaloidal, and vesicular basalt and basaltic andesite; local komatiitic basalt, dacite, and rhyolite	14,773.47	16.42%
Maddina Formation	Massive, amygdaloidal, or vesicular basalt and basaltic andesite; local komatiitic basalt, dacite, and rhyolite	58,475.22	64.99%
Marra Mamba Iron Formation	Chert, banded iron-formation, mudstone, and siltstone; minor carbonate; metamorphosed	11.97	0.01%
Tumbiana Formation	Basaltic volcanic rocks and carbonate rocks	13,265.71	14.74%

Table 3-3: Land Systems Within and Adjacent to the Development Envelope (van Vreeswyk *et al.* 2004).

Land system	Description	Area within the DE (ha)	Proportion within the DE (%)
Bonney system	Low rounded hills and undulating stony plains supporting soft spinifex grasslands	17,802.18	19.79%
Capricorn system	Rugged sandstone hills, ridges, stony footslopes and interfluvies supporting low acacia shrublands or hard spinifex grasslands with scattered shrubs	1,427.28	1.59%
Elimunna system	Stony plains on basalt supporting sparse acacia and cassia shrublands and patchy tussock grasslands	292.96	0.33%
Granitic system	Rugged granitic hills supporting shrubby hard and soft spinifex grasslands	77.48	0.09%
Laterite system	Low lateritic plateaux, mesas, buttes and gravelly rises and plains supporting sparse mulga shrublands	880.19	0.98%
McKay system	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with acacias and occasional eucalypts	5,704.65	6.34%
Newman system	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands	159.82	0.18%



Land system	Description	Area within the DE (ha)	Proportion within the DE (%)
River system	Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex	499.67	0.56%
Robe system	Low plateaux, mesas and buttes of limonite supporting soft spinifex and occasionally hard spinifex grasslands	4,320.07	4.80%
Rocklea system	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs	51,065.60	56.76%
Spearhole system	Gently undulating gravelly hardpan plains and dissected slopes supporting groved mulga shrublands and hard spinifex	274.61	0.31%
Wona system	Basalt upland gilgai plains supporting Roebourne Plains grass and Mitchell grass tussock grasslands, minor hard spinifex grasslands or annual grasslands/herbfields	7,469.36	8.30%



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- Legend**
- | | |
|--|----------------------------|
| Development Envelope | Black Range Dolerite Suite |
| GOV Towns | Euro Basalt |
| Major Roads | Golden Eagle Orthogneiss |
| Fortescue Rail | Hardey Formation |
| Roy Hill Rail | Jeerinah Formation |
| Indicative Disturbance Footprint | Kylenea Formation |
| Approved Disturbance (Nullagine Pilot Wind Farm) | Maddina Formation |
| | Marra Mamba Iron Formation |
| | Tumbiana Formation |

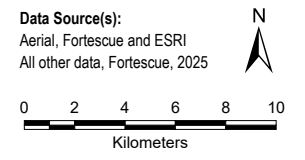


Figure 3-3
Geological Units
 within the Development Envelope

Requested By: R. Dorji
 Drawn By: R. Kerr
 Revised By: rykerr
 Approved By:
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_004_r1_Geological_Units

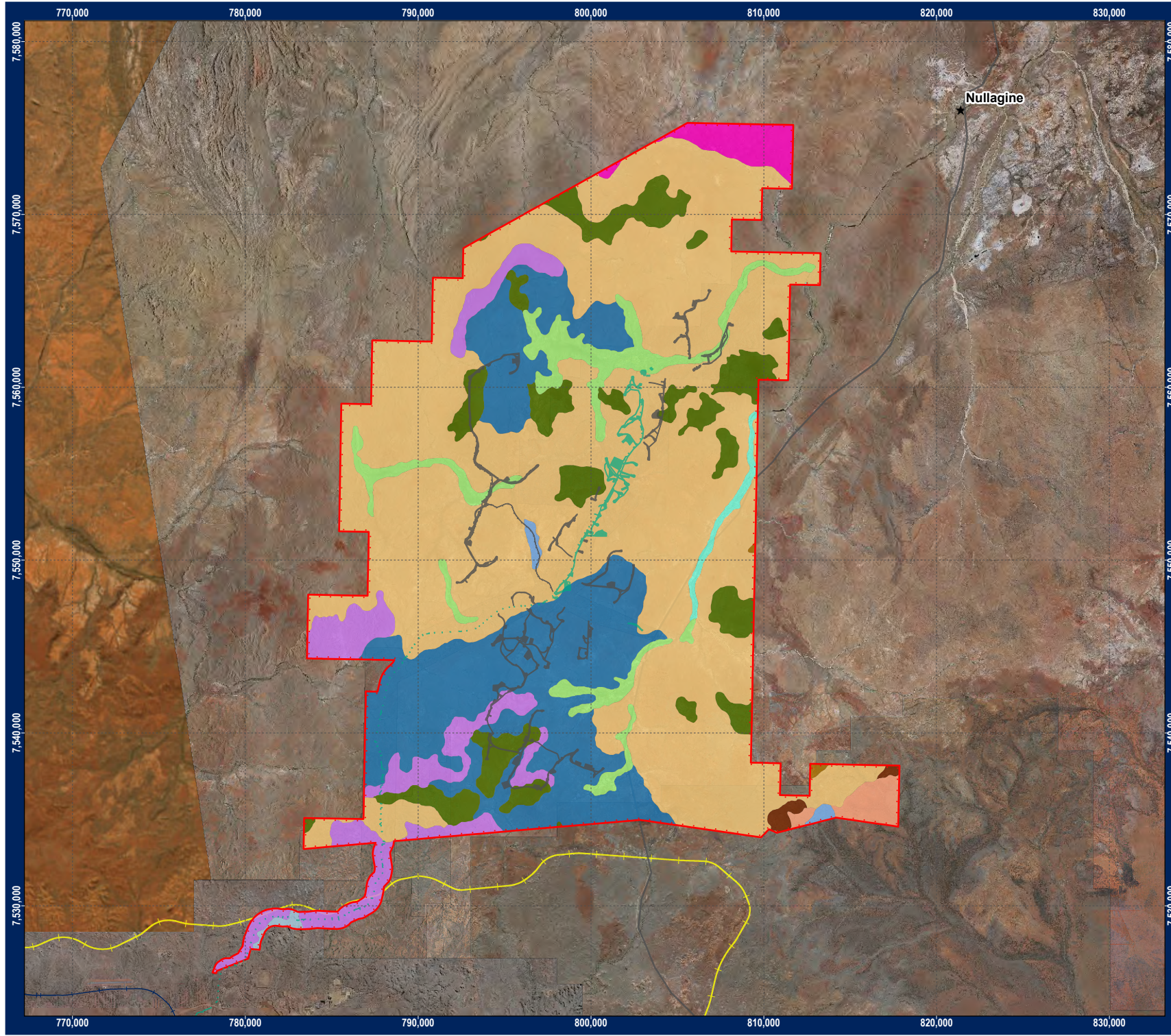
Date: 1/28/2026
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- Legend**
- | | |
|--|------------------|
| Development Envelope | Bonney System |
| GOV Towns | Capricorn System |
| Major Roads | Elimunna System |
| Fortescue Rail | Granitic System |
| Roy Hill Rail | Laterite System |
| Indicative Disturbance Footprint | McKay System |
| Approved Disturbance (Nullagine Pilot Wind Farm) | Newman System |
| | River System |
| | Robe System |
| | Rocklea System |
| | Spearhole System |
| | Wona System |

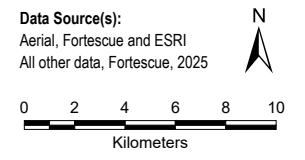


Figure 3-4
Land Systems
 within the Development Envelope

Requested By: R. Dorji
 Drawn By: R. Kerr
 Revised By: rykerr
 Approved By:
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_005_r1_Land_Systems

Date: 1/28/2026
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3.3.1.3 Hydrology and Hydrogeology

The DE is located within the Pilbara Surface Water Area and Pilbara Groundwater Area proclaimed under the RIWI Act (DWER, 2018a; DWER, 2018b). The DE is not located within any Public Drinking Water Source Areas and does not intersect any Rivers proclaimed under the RIWI Act (DWER, 2024a; DWER, 2018b). The DE occurs within the De Grey River Basin and the Fortescue River Basin (DWER, 2018c), and it overlaps four catchments: (1) Coongan River, (2) Shaw River, (3) Fortescue River and (4) Nullagine River (DWER, 2024c).

Groundwater at the site is contained within fractured and weathered zones in the Fortescue Group basalts. The existing bores target these zones, with depths ranging from 34 to 114 m. Groundwater levels typically range from 5 to 17 m below ground level (mbgl) with groundwater quality ranging from fresh to brackish 522 $\mu\text{S}/\text{cm}$ to 2,930 $\mu\text{S}/\text{cm}$.

Inland Waters is discussed further in Chapter 10.1 (Other Factors).

3.3.1.4 Environmentally Sensitive Areas

The Proposal does not intersect any mapped Environmentally Sensitive Areas (ESAs) (DWER, 2021b). The nearest ESA is approximately 9.3 km south of the DE and associated with the Fortescue Marsh.

3.3.1.5 Conservation Reserves

The Proposal does not intersect any DBCA managed conservation estate, private conservation reserves or lands of conservation interest to the State (DBCA, 2024a; DBCA, 2024b). The closest DBCA conservation estate to the DE is the Fortescue Marsh Nature Reserve, located approximately 9.3 km south of the DE. The closest land of conservation interest is a parcel of land formally part of the Hillside Pastoral Lease and now classed as Unallocated Crown Land (proposed for conservation), located approximately 7.76 km southwest.

3.3.1.6 Wetlands

The DE does not intersect any State or Nationally Important Wetlands, with the closest being Fortescue Marshes which is approximately 9.3 km south of the DE (DBCA, 2018). The DE also does not overlap any Ramsar Wetlands; however, the Fortescue Marshes Draft Proposed Ramsar Addition is approximately 6 km southwest of the DE. The DE overlaps the Fortescue River catchment, which contains the Fortescue Marshes.

3.3.1.7 Contaminated Sites and Acid Sulfate Soils

No contaminated sites listed on the Contaminated Sites Database (DWER, 2024b) are within the DE. The closest known contaminated site is 100 km south of the DE in Newman.

Acid Sulfate Soils (ASS) are naturally occurring soils and sediments which contain metal sulfides. When potential ASS is exposed to air, the iron sulphides within the soil react with oxygen and water, producing a variety of iron compounds and sulphuric acid (ANZG, 2018). The Atlas of Australian Acid Sulfate Soils describes the national map of available ASS mapping on coastal states and territories and ASS qualification inferred from surrogate databases based on national and state soils, hydrography and landscape coverages for the remaining Australian territory. The vast majority of the DE (87.05%) is described as having an extremely low probability for occurrence of ASS. However, this classification has a confidence level 4, which means that this is a provisional classification inferred from surrogate data with



no on-ground verification (Fitzpatrick *et al.*, 2011). The detailed classification is described in Table 3-4 and Figure 3-5.

Table 3-4: Acid Sulfate Soils within the Development Envelope

Classification*	Probability of occurrence in mapping unit	Area within DE (ha)	Description
An(p4)	High Probability of occurrence - >70% chance of occurrence in mapping unit.	27.59	ASS generally within upper 1 m in wet / riparian areas with Sodosols, Chromosols and Dermosols (Isbell, 1996).
Bn(p4)	Low Probability of occurrence - 6-70% chance of occurrence in mapping unit.	11,626.63	ASS generally within upper 1 m in wet / riparian areas with Sodosols, Chromosols and Dermosols (Isbell, 1996).
Cn(p4)	Extreme low probability of occurrence - 1-5% chance of occurrence in mapping unit with any occurrences in small, localised areas.	72,877.90	ASS generally within upper 1 m in wet / riparian areas with Sodosols, Chromosols and Dermosols (Isbell, 1996).
Cq(p4)		5,441.74	ASS generally within upper 1 m in wet / riparian areas with Kandosols, Ferrosols, Tenosols, Rudosols and Podosols (Isbell, 1996).

*P - Potential acid sulfate soil = sulfidic material; 4 - No necessary analytical data are available, and classifier has little knowledge or experience with ASS, hence classification is provisional.



- Legend**
- ▭ Development Envelope
 - ★ GOV Towns
 - Major Roads
 - Fortescue Rail
 - Roy Hill Rail
 - ▭ Indicative Disturbance Footprint
 - ▭ Approved Disturbance (Nullagine Pilot Wind Farm)
- Acid Sulfate Soils**
- ▭ An(p4)
 - ▭ Bn(p4)
 - ▭ Cn(p4)
 - ▭ Cq(p4)

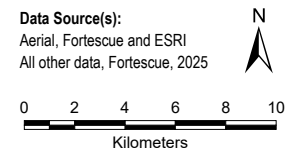


Figure 3-5
 Acid Sulfate Soils
 within the Development Envelope

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_006_r1_Acid_Sulfate
 Fortescue accepts no liability and gives no representation or warranty, express or implied, as to the information provided including its accuracy, completeness, merchantability or fitness for purpose.





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3.3.2 Biological Environment

3.3.2.1 Bioregions

There are 89 recognised Interim Biogeographic Regionalisation for Australia (IBRA) regions that have been defined (DCCEEW, 2023a).

The DE lies within the Pilbara Bioregion, and the Chichester and Fortescue Subregions defined by the IBRA, Version 7 (DCCEEW, 2023a). The Pilbara Bioregion is characterised as extensive coastal plains, mountain ranges, and active drainage in the Ashburton, Fortescue and De Grey River systems. The vegetation predominately consists of low mulga woodlands or snappy gum over tussock and hummock grasses (McKenzie *et al.*, 2003).

The Chichester subregion (PIL1) is described by Kendrick and Mckenzie (2001) as “undulating Archaean granite and basalt plains include significant areas of basaltic ranges”. The vegetation within this subregion consists of shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* (formerly known as *Triodia pungens*) hummock grasslands, with *Eucalyptus leucophloia* tree steppes on ranges. Land use within the area includes grazing, native pasture, conservation, urban and mining (Kendrick & Mckenzie, 2001).

The Fortescue subregion (PIL2) is described by Kendrick (2001) as “Alluvial plains and river frontage”. Extensive salt marsh, mulga-bunch grass, and short grass communities on alluvial plains in the east. Deeply incised gorge systems occur in the western (lower) part of the subregion. River gum woodlands fringe the drainage lines. This subregion is noted as being the northern limit of Mulga (*Acacia aneura*). The Millstream aquifer, an extensive calcrete aquifer (originating within a palaeo-drainage valley), lies between the Chichester and Hamersley Ranges and feeds numerous permanent springs in the central Fortescue, supporting large permanent wetlands with extensive stands of river gum and cadjeput (*Melaleuca*) woodlands. The Fortescue Marsh is the key feature of the subregion within the local area of the Proposal. Land use within the area includes grazing, native pasture, unallocated crown land, crown reserves, conservation and Aboriginal land (Kendrick, 2001).

3.3.2.2 Pre-European Vegetation

Pre-European vegetation mapping based on Beard (1975; 1990) describes five vegetation associations within the DE. The DE is predominantly composed of vegetation association 173 (98.34%). The remainder of the DE is comprised of vegetation associations 18, 29, 93 and 562. All other vegetation associations each represent less than 1.0% of the DE. The pre-European vegetation associations within the DE and their current extent are discussed further in Chapter 7 (Flora and Vegetation).

3.3.2.3 Threatened and Priority Ecological Communities

A description of Threatened and Priority Ecological Communities (PECs) within the DE is provided in Chapter 7 with a summary provided below.

Six PECs were identified within approximately 50 km of the DE, including one overlapping the DE:

1. ‘Four plant assemblages of the Wona Land System’ (Priority (P) 1, P3) in multiple locations throughout the DE. This PEC comprises four assemblages:
 - Cracking clays of the Chichester and Mungaroona Range (P1),



- Annual Sorghum grasslands on self-mulching clays with a moderate-dense overlay of rocks (P1),
 - Mitchell grass plains (*Astrebela* spp.) on gilgai (P3), and
 - Mitchell grass and Roebourne Plain grass (*Eragrostis xerophila*) plain on gilgai (P3).
2. 'Fortescue Marsh (Marsh Land System)' (P1) located approximately 9.3 km southwest of the DE,
 3. 'Stony saline clay plains of the Mosquito Land system' (P3): approximately 5.63 km northeast and outside of the DE,
 4. 'Narbung Land System' (P3): approximately 37 km south of the DE,
 5. 'Freshwater claypans downstream of the Fortescue Marsh - Goodiadarrie Hills on Mulga Downs Station.'(P1): approximately 30 km south of the DE, and
 6. 'Vegetation of sand dunes of the Hamersley Range/Fortescue Valley' (P3): approximately 51 km south and outside of the DE.

Ecologia (2025a) recorded vegetation type VfAI (6,809.26 ha within the DE), which is consistent with the DBCA listed community 'Four plant assemblages of the Wona Land System' (P1) and more specifically to the 'Cracking clays of the Chichester and Mungaroon Range' (P1).

3.3.2.4 Threatened and Priority Flora

A description of Threatened and Priority flora within the DE is provided in Chapter 7 with a summary provided below.

Threatened Flora

The desktop survey identified one Threatened flora species within 50 km of the DE. There are three records of *Quoya zonalis* (Pilbara Foxglove), listed as Endangered under the *Biodiversity Conservation Act 2016* (BC Act) and EPBC Act, 9 km north of the DE. Ecologia (2025a) recorded 21 individuals within the survey area, however, they were recorded 4.5 km north, outside of the DE.

Priority Flora

The desktop survey identified 59 Priority flora species listed by DBCA and/or Fortescue databases that have previously been recorded within approximately 50 km of the DE, of which ten species occurred within the DE. Ecologia (2025a) recorded 13 Priority flora species within the DE, including five species which were previously recorded.



3.3.2.5 Threatened and Priority Fauna

A description of Threatened and Priority fauna within the DE is provided in Chapter 8 with a summary provided below.

Threatened Fauna

Four Threatened fauna and two Migratory species protected under the BC Act were recorded during the surveys within the DE, including Grey Falcon (*Falco hypoleucos*); Northern Quoll (*Dasyurus hallucatus*); PLNB (*Rhinonictoris aurantia*); Pilbara Olive Python (*Liasis olivaceus barroni*); Fork-tailed Swift² (*Apus pacificus*); and the Oriental Plover (*Charadrius veredus*).

Based on the likelihood of occurrence assessment undertaken, a further three Threatened fauna species protected under the BC Act are considered to have a moderate or above likelihood of occurrence in the DE, including Night Parrot (*Pezoporus occidentalis*); Australian Painted Snipe (*Rostratula australis*); and Common Greenshank (*Tringa nebularia*).

One 'Other Specially Protected' species (Peregrine Falcon (*Falco peregrinus*)), and eight Migratory species, listed under the BC Act are considered to have a moderate or above likelihood of occurrence in the DE.

Priority Fauna

Four Priority fauna species listed by DBCA have been recorded within the DE, including Brush-tailed Mulgara (*Dasyercus blythi*); Western Pebble-mound Mouse (*Pseudomys chapmani*); Northern Short-tailed Mouse (*Leggadina lakedownensis*) and Gane's Blind Snake (*Anilios ganei*). In addition, the Long-tailed Dunnart (*Antechinomys longicaudata*) is considered to have a high likelihood of occurrence within the DE.

3.3.3 Social Context

A description of social surroundings values within the DE is provided in Chapter 9 with a summary provided below.

3.3.3.1 Native Title

The DE is located within the following native title determination areas which have the Palyku-Jartayi Aboriginal Corporation (PJAC) as the registered native title body corporate:

- Palyku Part A native determination area (WCD2019/002), determination date March 2019.

The DE is also located within the following native title determination area which has the Karlka Nyiyaparli Aboriginal Corporation (KNAC) as the registered native title body corporate:

- Nyiyaparli People native title determination area (WCD2018/008), determination date September 2018.

² Ecologia (2025b) and the BBSUS (Ecologia, 2026) refer to the species as Fork-tailed Swift, whereas HBI (2026a) and the BBAMP refer to it as Pacific Swift. For the purposes of this report, the species is referred to as Fork-tailed Swift.



Consultation with Palyku-Jartayi Aboriginal Corporation (PJAC) and Karlka Nyiyaparli Aboriginal Corporation (KNAC) has been undertaken for the Proposal and is detailed in Section 4.3.

3.3.3.2 Land Use

The Proposal is sited within the Nullagine locality and the northern-most edge of the DE is located approximately 9 km southwest of Nullagine town (at the northern extent of the DE). The Proposal is located in the Shire of East Pilbara. The main town sites within the Shire are Newman, Marble Bar and Nullagine. The Aboriginal communities of Goodabinya and Irrungadji are located on the edge of Marble Bar and Nullagine townsites respectively.

Dominant land uses in the region include pastoralism, mining and conservation reserves (DPIRD, 2023). The Shire is rich in mining and pastoral activities, providing a significant contribution to the State and National economies. There are 109 active iron ore mines located within the East Pilbara, producing half of the Pilbara's total iron ore production and generating \$57.6 billion in commodities in 2020 (Shire of East Pilbara, 2022).

The DE is situated on the Bonney Downs, Hillside and Roy Hill pastoral leases.

The southern edge of the DE is adjacent to the Christmas Creek Iron Ore Mine Expansion DE (as per MS 1033). Additional operational mines within 50 km of the DE are associated with East Pilbara Iron Ore (Fortescue), Marillana Agate, McPhee Creek and Roy Hill Iron Ore (DMIRS, 2024).



4 STAKEHOLDER ENGAGEMENT

4.1 Key Stakeholders

A stakeholder identification process was undertaken by Fortescue to identify community and government stakeholders with an interest in the Proposal, or those that may be directly and/or indirectly affected. These key stakeholders have been and will continue to be engaged with throughout the assessment process and life of the Proposal (Table 4-1).

Table 4-1: Key Stakeholders Identified for the Proposal

Stakeholder Category	Organisation	Primary Area of Interest
Government Agencies	Department of Water and Environmental Regulation (DWER) – EPA Services, Licencing, Regional Services	Understanding of impacts to Preliminary Key Environmental Factors Environmental impact assessment Watercourse Water Protection
	Department of Biodiversity, Conservation and Attractions (DBCA)	Environmental impact assessment Environmental approvals
	Department of Mines, Petroleum and Exploration (DMPE) (formerly Department of Energy, Mines, Industry, and Safety (including Worksafe) (DEMIRS))	Environmental risk assessments
	Department of Energy and Economic Diversification (DEED) (formerly Department of Jobs, Tourism, Science and Innovation (JTSI))	Development of renewable energy asset
	Department of Climate Change, Energy, Environment and Water (DCCEE).)	Understanding of impacts to MNES Environmental impact assessment Responsible for environmental approvals
	DPLH	Appropriate land use Endorsement in line with existing and future planning requirements
	WA Treasury	Economic impacts of the Proposal (WA Treasury)
	Pilbara Development Commission	Remit to manage drive and growth in the Pilbara region
Native Title Holders	Palyku People	<ul style="list-style-type: none"> Native Title rights and access to country. Management of Aboriginal Cultural Heritage and Cultural Values. Potential impacts to values including flora, fauna and water, and changes to land use. Contract opportunities.
	Niyaparli People	
Local Government	Shire of East Pilbara	<ul style="list-style-type: none"> Project development. Project economic benefits during construction and operations phases.
Landholders	Bonney Downs Pastoral Station	



Stakeholder Category	Organisation	Primary Area of Interest
	Hillside Pastoral Station	Pastoral lease holder - impacts to pastoral activity
	Roy Hill Pastoral Station	
Community and Special Interest Groups	Association of Mining and Exploration Companies (WA)	Potential impacts to environmental values, Threatened species and communities. Environmental management.
	Chamber of Minerals and Energy (WA)	Potential impacts to environmental values, Threatened species and communities. Environmental management.
	Beeliar Group	Potential impacts to environmental values and Threatened species.
	Conservation Council WA	Potential impacts to environmental values in particular listed plants and vegetation communities
	Australian Conservation Fund	Potential impacts to environmental values and Threatened species
	Wildflower Society	Potential impacts to environmental values and Threatened species.
	World Wildlife Fund (Australia)	Potential impacts to environmental values, Threatened species and communities. Environmental management.
	Greening Australia	Potential impacts to environmental values, Threatened species and communities. Environmental management.
	Kimberley Pilbara Cattlemen's Association	<ul style="list-style-type: none"> • Potential impacts to pastoral activities and viability of pastoral stations. • Land use.
	Pilbara Mesquite Management Committee	Potential environmental impacts such as weed introduction and spread.
	Rangelands NRM	Potential impacts and changes to land use. Potential environmental impacts such as weed introduction and spread, fire management, feral species, Threatened species habitat.
	Save the Bilby Fund	Potential impacts to environmental values in particular Bilby Habitat.
	The Wilderness Society of WA Inc	Potential impacts to environmental values and Threatened species
	Birdlife WA	Potential impacts to environmental values in particular Threatened birds including the Night Parrot and Migratory birds that may utilise Fortescue Marsh.
Australian Wildlife Conservancy	Potential impacts to environmental values and Threatened species.	
Care for Hedland	Potential impacts to environmental values and Threatened species.	



4.2 Stakeholder Engagement Process

Fortescue commenced consultation for the proposal in early 2023 through a combination of face-to-face meetings, presentations and letters to key community stakeholders.

Consultation undertaken to date has provided Fortescue with the opportunity to discuss the Proposal with stakeholders and gain valuable feedback. This feedback was considered during the development of the Proposal.

In order to undertake effective consultation, a consultation program was developed specifically for this Proposal. The objectives of the consultation program included the following:

- To identify and engage key stakeholders,
- To identify and verify areas of stakeholder feedback for social and environmental values,
- To establish a robust consultation approach and demonstrate that appropriate consultation has been undertaken,
- To assess stakeholder issues/concerns so that proposed impacts are minimised to ‘as low as reasonably practicable’,
- Key consultation activities included the following:
 - Correspondence to potentially impacted parties providing information on the Proposal, requesting feedback and offering detailed briefings, and
 - Meetings with decision making authorities to discuss and obtain feedback on the Proposal.

One-on-one briefings and feedback sessions with specific stakeholders.

4.3 Stakeholder Consultation

Detailed consultation has been undertaken with key Federal, State and Local regulatory authorities in addition to consultation with Traditional Owner groups and key landholders. Consultation on the Proposal will continue throughout the environmental impact assessment and for the life of the Proposal. A summary of consultation undertaken to date is shown in Table 4-2.



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Table 4-2: Stakeholder Consultation Undertaken for the Proposal

Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
Government Agencies and Regulators				
Department of Climate Change, Environment, Energy and Water (Cth) (DCCEEW)	6 June 2024	<p>In Person Meeting:</p> <p>DCCEEW:</p> <ul style="list-style-type: none"> Kylie Calhoun (Branch Head, Nature Positive Regulation Division) Candice Cooke (Director, Nature Positive Regulation Division) <p>Fortescue:</p> <ul style="list-style-type: none"> Matthew Dowling – Manager Environment Primary Approvals Jarrold Pittson – Group Manager Environment and Governance 	<p>Meeting to provide an update on the following projects:</p> <ul style="list-style-type: none"> East Pilbara Generation Hub Bonney Downs Wind Nullagine Pilot Wind NSJ West Solar (now Turner River Solar Hub) Mindy South and Nyidinghu Western Hub 	DCCEEW expressed support for the design principles for the proposed solar and wind projects.
	2 December 2025	Email from Katie Williams (DCCEEW Assistant Director) to Matt Dowling re Nullagine Pilot Wind Farm	<p>DCCEEW confirmed no more information re the Nullagine Pilot Wind Farm project was required.</p> <p>DCCEEW recommended to include a clear description and definition of the proposed action, specifying which components are included and excluded.</p>	Fortescue withdrew Bonney Downs wind farm referral and resubmitted following DCCEEW recommendations.
Department of Water and Environment Regulation – EPA	23 April 2023	In person meeting:	Updates provided on decarbonisation project definition and timeframes	The outcomes of the meeting relevant to Bonney Downs were:



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
Services (Green Energy Division (GED))		<ul style="list-style-type: none"> • Alicia Dudzinska – Manager Solar and Wind, • Samara Rogers – Senior Environmental, and • Koby Anderson Senior Environmental. <p>Fortescue:</p> <ul style="list-style-type: none"> • Matthew Dowling – Manager Environment, Primary Approvals and Governance, • Parveen Bauer – Manager Environmental Mining Approvals, and • Jacob Azzarello – Principal Environment. 	<p>Projects discussed included:</p> <ul style="list-style-type: none"> • Solomon Solar Farm, • Cloudbreak Solar Farm, • NSJ West Solar Farm (now Turner River Solar Hub), • EPGH Wind Farm, • Nullagine Pilot Wind Farm, • Bonney Downs Wind Farm, • Discussion on using current Ministerial Statements to support solar developments within current mining areas, • Query on regulatory agency co-operation on streamlining green energy approvals between DWER and DEMIRS. 	<p>EPA / GED was generally supportive of the proposed projects and approvals pathway. Suggestion to have pre-referral meeting prior referral to go through defined projects and potential impacts on preliminary environmental factors.</p>
	30 October 2023	<p>Meeting with Fortescue to discuss decarbonisation and detailed environment discussions.</p> <p>DWER:</p> <ul style="list-style-type: none"> • Shaun Meredith, • Tracey Hassell, • Tania Ashworth, and • Carrie Sunderland. 	<p>Follow-up meeting from 12/10/23 to discuss current level of environmental information and level of engineering design of the projects. Discussion mainly focused on preferred environmental approval pathways and what information is required to achieve an “Assessed on Referral Information” (ARI). Key projects discussed included:</p> <ul style="list-style-type: none"> • NSJ West Solar Farm (now Turner River Solar Hub), 	<p>The outcomes of the meeting relevant to the Bonney Downs were:</p> <ul style="list-style-type: none"> • The EPA is concerned about the life cycle of green energy technologies and the waste streams that will result from the maintenance or replacement of infrastructure, • GED recommend a follow up meeting in early 2024 to discuss the scope of the impact assessment in



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		Fortescue: <ul style="list-style-type: none"> • Jarrod Pittson – Group Manager Environment and Governance, and • Matt Dowling – Manager Environment, Primary Approvals and Governance. 	<ul style="list-style-type: none"> • EPGH, • Bonney Downs Wind Farm, • Cloudbreak Solar Farm, and • Solomon Solar Farm. 	order to get agreement on the studies and assessment methodology ahead of referral, and <ul style="list-style-type: none"> • GED recommended Fortescue investigate the supply chain and logistics associated with the proposal. Additional approvals may be required to support the importation and transport of infrastructure.
	16 January 2024	In person meeting: EPA / GED: <ul style="list-style-type: none"> • Tania Ashworth – Manager Solar and Wind, • Samara Rogers – Senior Environmental, and • Koby Anderson Senior Environmental. Fortescue: <ul style="list-style-type: none"> • Jarrod Pittson – Group Manager Environment and Governance, • Lazaro Rogue-Albelo – Functional Lead 	Overview of environmental studies, bird and bat research project and project definition and timeframes Projects discussed included: <ul style="list-style-type: none"> • NSJ West Solar Farm, • EPGH Wind Farm, and • Bonney Downs Wind Farm. Preliminary key environmental factors (flora and vegetation, terrestrial fauna and social surroundings), sensitive receptors identified, surveys outcomes discussed and ongoing work. Proposed approval pathway of ARI was discussed and how to minimise requests for further information.	The outcomes of the meeting relevant to Bonney Downs were: <ul style="list-style-type: none"> • EPA / GED was generally supportive of the proposed projects and approvals pathway. Suggestion to have pre-referral meeting prior referral to go through defined projects and potential impacts on preliminary environmental factors, • Support to streamline approval pathway and reduce request for further information by providing as much information up front as possible and highlighting any outstanding information that is pending, and • Supportive of accredited assessments with the Commonwealth.



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		Biodiversity & Science, <ul style="list-style-type: none"> • Jacob Azzarello – Principal Environment, and • Rikki Hughes - Environmental Advisor. 		
	30 October 2024	In person meeting EPA/GED <ul style="list-style-type: none"> • Sam Rycken • Helen Lafuente • Tayla Hunter Fortescue <ul style="list-style-type: none"> • Matt Dowling – Manager Primary Approvals • Jacob Azzarello – Principal Environment • Sofie Springer – Senior Environmental Advisor 	Meeting held at EPA premises to provide an overview on Fortescue’s decarbonisation proposals including: <ul style="list-style-type: none"> • Turner River Solar Hub • East Pilbara Generation Hub • Nullagine Pilot Wind Farm 	EPA were supportive of the concept to submit detailed proposals and proposed approval timeframes.
	8 September 2025	Online meeting EPA/GED <ul style="list-style-type: none"> • Lindsay Bourke - Manager (Wind and 	Pre-referral presentation to discuss the approvals pathway for the Bonney Downs Part IV Referral. Fortescue provided an overview of the Proposal, studies to date and environmental impact assessment.	The GED were supportive of Fortescue’s approach to submit a detailed referral and proposed approvals pathway.



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		Solar) – Green Energy Approvals <ul style="list-style-type: none"> • Ben Gates - A/Manager (Hydrogen) Green Energy Fortescue <ul style="list-style-type: none"> • Matt Dowling – Manager Primary Approvals • Sofie Springer – Principal Environment 		
	22 January 2026	In person meeting EPA/GED <ul style="list-style-type: none"> • Ben Gates – A/Manager Green Energy • Nicole Zago • Tayla Hunter Fortescue <ul style="list-style-type: none"> • Matt Dowling – Manager Primary Environmental Approvals • Jacob Azzarello – Principal Environment 	Pre-referral presentation to discuss the revised Proposal which has been updated to: <ul style="list-style-type: none"> • Significantly reduce disturbance footprint and number of turbines. • Propose fauna habitat exclusion zones • Exclude Nullagine pilot wind farm from the Proposal • Include outstanding studies/management plans that were not available in 2025. 	The GED were supportive of Fortescue’s approach to submit an updated referral with the changes outlined.



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		<ul style="list-style-type: none"> Vlad Rios Vera – Senior Environmental Advisor 		
JTSI	12 October 2023	<p>Meeting with JTSI, DWER and DEMIRS</p> <p>JTSI:</p> <ul style="list-style-type: none"> Lakshmi Jones – Project Support Officer Green Energy Major Projects, and David Alexander. <p>DWER:</p> <ul style="list-style-type: none"> Shaun Meredith – Executive Director Green Energy Directorate. <p>DEMIRS:</p> <ul style="list-style-type: none"> Dan Endacott - General Manager Mining Environment. <p>Fortescue:</p> <ul style="list-style-type: none"> Matthew Dowling – Manager Environment, Primary Approvals Jacob Azzarello – Principal Environment. 	<p>Presentation of key Decarbonisation Projects to the Green Energy Directorate (GED), Department of Energy, Mines, Industry and Safety (DEMIRS) and JTSI.</p> <p>Assessment pathways for the proposed decarbonisation projects were discussed outlining the preferred approach; key projects discussed included:</p> <ul style="list-style-type: none"> Seeking assessment on referral information. <p>Main goals for the decarbonisation projects include:</p> <ul style="list-style-type: none"> Fortescue requires ~1 GW solar and ~1 GW of wind, planned to be built in tranches - 2023 - 2028 to achieve 2030 Business Decarbonisation target. <p>Support for efficient and accelerated approval pathways - interagency cooperation</p>	<p>The outcomes of the meeting relevant to Bonney Downs were:</p> <ul style="list-style-type: none"> No objections from Traditional Owners are seen as a key component, DEMIRS verbally indicated that parallel processing could be undertaken for Mining Proposals while Part IV assessments were being completed. Indicating that approval of the Mining Proposal could not be given until Ministerial approval was granted, and DEMIRS verbally indicated submission of Mining Proposals prior to tenure grant was possible (e.g. PTP 4 Strategic Mining Proposal) for assessment, however approval of Mining Proposal still requires tenure grant. <p>Supportive of Fortescue Decarbonisation projects however indicated that sufficient information for projects will be required to facilitate streamlined approvals / assessments.</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
	28 January 2025	In person presentation Representatives from JTSI's State Agreement and Green Energy teams	No State Agreement approvals required for Bonney Downs scope. JTSI, as administrator of Fortescue's State Agreements, was briefed on Fortescue's Social Impact Assessment of the Pilbara Decarbonisation Program, of which Bonney Downs is a key component. Christmas Creek mine was developed and operates under the Chichester State Agreement and will receive energy from the Bonney Downs project.	The presentation was received favourably, and JTSI requested to be updated on the rollout of the Social Impact Assessment to relevant impacted stakeholders of the Program.
	25 June 2025	In person presentation JTSI: <ul style="list-style-type: none"> • Gerard Treacy – General Manager • Guy Chandler – Project Manager Green Energy Major Projects Fortescue: <ul style="list-style-type: none"> • Leigh Dowie – Senior Manager Green Power Delivery • Matthew Dowling – Manager Primary Approvals • Diana Ting – Manager Port and State Approvals • Zena Harman – Senior Manager Sustaining 	Fortescue presentation of key decarbonisation projects and approvals pathways to JTSI Green Energy Major Projects team.	Presentation was well received by JTSI and JTSI will continue discussions around limited transport capacity for wind turbine blades with the Department of Transport (DoT). In particular, the potential constraints around OSOM movements and the need for improved coordination of transport logistics for renewable energy projects in the Pilbara.



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		Environmental Approvals		
Local Government				
Shire of East Pilbara (SoEP)	20 May 2025	Pre-referral notification letter sent via email. Matt Dowling to Steve Gould	Notification of the environmental assessment process for the Proposal and update on Fortescue's plan to submit a referral under Part IV of the EP Act to the Western Australian EPA.	The letter was acknowledged during meeting with the SoEP on 21 May 2025. No queries raised.
	21 May 2025	<p>Online meeting: SoEP:</p> <ul style="list-style-type: none"> • Steven Harding – CEO • Etienne Vorster - Director of Infrastructure Services • Steven Gould – Manager of Strategy and Partnerships <p>Fortescue:</p> <ul style="list-style-type: none"> • Katie Voss – Manager Communities Australia • Jacob Azzarello – Principal Environment • Ben Nicholson – Principal Communities • Adrian Marcello – Development Manager Green Power • Stephen Borovac – Senior Project 	<p>Fortescue and Shire of East Pilbara monthly meeting. Fortescue provided updates on the following:</p> <ul style="list-style-type: none"> • Decarbonisation projects updates including hillside access road modifications and Bonney Downs Wind Farm. • Fortescue Communities update including Welcome to Newman, Community Grants and Community Development Plan 	<p>The outcomes of the meeting relevant to Bonney Downs Wind Farm were:</p> <ul style="list-style-type: none"> • SoEP supportive of ongoing engagement with Palyku and Nyiyaparli and Pastoralists regarding the Bonney Downs Wind Farm. • Interest in significant fauna recorded, however no concerns raised. • No concerns raised regarding visual impacts from Marble Bar Road.



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		Engineer Decarbonisation <ul style="list-style-type: none"> Janelle Fell – Senior Tenements Specialist 		
Surrounding Landowners				
Bonney Pastoral (BDS)	Downs Station 11 Mar 2025	In person meeting: <ul style="list-style-type: none"> Bonney Downs and Corunna Downs. Pastoralist: <ul style="list-style-type: none"> Erica Goyder (Owner / Director), Mike Smith (Tenement Manager), and Robert Edel (Consultant/Lawyer). Fortescue: <ul style="list-style-type: none"> Damon Edwards (General Manager Tenure and Access), Max Coyne (Manager Pastoral Access), Leigh Dowie (Senior Manager Green Power Delivery), and Matthew Dowling (Manager Primary Environmental Approvals). 	Meeting to provide an update on to present project updates and environmental impacts for the East Pilbara Generation Hub (EPGH) and Bonney Downs Wind Farm. <ul style="list-style-type: none"> BDS noted general concerns will all relevant social surroundings factors (visual, noise, dust and vibration) BDS noted turbine locations are generally on ridges. Queried feasibility of road access to ridges and management of associated erosion.	The outcomes of the meeting relevant to Bonney Downs were: <ul style="list-style-type: none"> Fortescue responded that it could assess surroundings factors (visual, noise, dust and vibration) in areas of importance as nominated by BDS. Fortescue response to turbine locations: <ul style="list-style-type: none"> Road access is planned to accommodate max gradient for cranes and is not considered a risk, Surface runoff will be dealt with in corresponding studies and Bonney Downs is invited to comment on any areas of particular concern for Fortescue assessment, and Fortescue invited BDS to nominate areas of importance (as mentioned above) for further or more focussed social surrounds assessment. Fortescue committed to send a letter or email inviting BDS to nominate areas of importance for



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
				further or more focussed social surrounds assessment
	14 Mar 2025	Email sent to BDS from Matthew Dowling (Manager Primary Environmental Approvals).	Email requesting BDS to provide nominated areas of importance for focussed social surroundings assessments	No response.
	30 Jun 2025	Email sent to Pastoralist by M Coyne, reviewing minutes/actions from March meeting, seeking feedback to M Dowling's request, noting next meeting was due post response to M Dowling's email	Further meeting request by Fortescue	No reply re meeting, Pastoralist responded to social surround assessment as below.
	30 Jun 2025	Email received from Bonney Downs responding to Matthew Dowling (Manager Primary Environmental Approvals)	Email from Erica Goyder requesting Fortescue to conduct studies in the areas proposed by Matt Dowling.	Fortescue has undertaken studies requested: <ul style="list-style-type: none"> Noise and vibration assessments Dust assessment Visual impact assessment Surface water or groundwater assessment.
	19 Aug 2025	Email sent by M Coyne, further meeting request		Pastoralist noted back in Per Aug 29 th , will check with her lawyer's availability and advise soon.
Hillside Station Pastoral	22 May 2025	Pre-referral notification letter sent via email. Matt Dowling (Fortescue) to Brent Smoothy; Panorama Station Owner	Notification of the environmental assessment process for the Proposal and update on Fortescue's plan to submit a referral under Part IV of the EP Act to the Western Australian EPA	No response.
Roy Hill Station Pastoral	22 May 2025	Pre-referral notification letter sent via email. Matt Dowling	Notification of the environmental assessment process for the Proposal and update on	Fortescue has provided a map with the Roy Hill Pastoral Station extent and Proposed



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		(Fortescue) to Shirene Backhouse Administrator for Roy Hill Pastoral Station.	Fortescue's plan to submit a referral under Part IV of the EP Act to the Western Australian EPA. Roy Hill requested the Development Envelope Spatial File.	Bonney Downs Wind Farm Development Envelope in notification letter.
Native Title / Traditional Owners				
Niyaparli	10 May 2023	Meeting <ul style="list-style-type: none"> Niyaparli Heritage Sub-Committee (HSC), and Karika Niyaparli Aboriginal Corporation (KNAC). 	Introduction to proposed transmission line (PTP8) required to support the proposed Bonney Downs Wind project to the Niyaparli HSC. Overview of previous heritage surveys undertaken in the area was provide. Fortescue requested HSC to confirm if previous reports can be used for PTP8 project. Opportunity was also provided for on-ground consultation for the proposed infrastructure. KNAC requested confirmation that Fortescue has appropriate tenure in northern section of PTP alignment in Niyaparli country. KNAC requested confirmation that access to Sandy Creek is maintained.	Fortescue to provide due diligence assessment on PTP8 for KNAC to review use off previous surveys.
	9 Aug 2023	Meeting <ul style="list-style-type: none"> Niyaparli Working Group, and KNAC. 	Introduction to proposed transmission line (PTP8) required to support the proposed Bonney Downs Wind project to the Niyaparli Working Group. Fortescue noted the transmission line would follow the existing Nullagine Mine Haul Road. The Project is in early phase with surveys, investigations and approvals still progressing.	Fortescue acknowledged on going consultation with Niyaparli will be required for heritage surveys and would continue to update as the project progresses.
	8 Nov 2023	Meeting <ul style="list-style-type: none"> Niyaparli Working Group, and KNAC. 	Fortescue provided an update on the PTP8 transmission line required for Bonney Downs Wind project. Still progressing with investigations however, it was noted that some areas had already been heritage surveyed.	Fortescue agreed to provide an update on the status of decarbonisation projects (solar and wind) at the next working group meeting.



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			<p>KNAC raised questions regarding the use of previous heritage surveys for decarbonisation project requirements and requested further information on decarbonisation prioritisation within Fortescue.</p> <p>KNAC also raised questions about potential visual impacts of the Wind Farm and diminishing access to country and sought clarity from Fortescue on the prioritisation of engagements with regard to decarbonisation and mining projects.</p>	
	9 Apr 2024	<p>Meeting</p> <ul style="list-style-type: none"> • Niyaparli Working Group, and • KNAC. 	<p>Fortescue provided an update on decarbonisation projects as requested from the November 2023 Working Group meeting. This included an update on all solar and transmission projects on Niyaparli country, including PTP8 associated with Bonney Downs.</p> <p>The Working Group (WG) raised concerns about whether camping grounds used by Niyaparli would be impacted and how could Fortescue ensure this wouldn't happen if consultation hasn't occurred.</p>	<p>Fortescue agreed to notify KNAC of any Nullagine Mine Haul Road closures during construction, ensuring continued access for KNAC representatives.</p>
	17 Jul 2024	<p>Meeting</p> <ul style="list-style-type: none"> • Niyaparli Working Group, and • KNAC. 	<p>Fortescue provided further update on PTP8 noting that construction would aim to start in July 2025. Fortescue noted that heritage surveys have been commenced, and that on-ground consultation would occur for potential visual impacts from the proposed development, including Bonney Downs Wind farm.</p>	<p>Fortescue has included three viewpoints in the Visual Impact Assessment on Niyaparli Country, including one POI located north of Soda Springs.</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			<p>KNAC requested that a visual impact assessment be undertaken for the wind farm at Bonney Downs from Nyiyaparli Country.</p>	
	<p>17-18 Sept 2024</p>	<p>On-Country Consult</p> <ul style="list-style-type: none"> • Nyiyaparli representatives, and • KNAC. 	<p>On-country social surrounds consultation for the Bonney Downs Wind Farm Project, including PTP8 transmission line. Consultation including Nyiyaparli representatives, KNAC staff and their consultants, and Fortescue subject-matter experts.</p> <p>Key objectives of this consult were to identify social and cultural values in the project area of importance to Nyiyaparli and understand any concerns Nyiyaparli may have regarding the proposed project. The trip also provided opportunity to provide an update on studies undertaken to date and proposed management strategies that will be implemented to avoid or minimise environmental impact.</p> <p>Nyiyaparli requested the proposed transmission line is kept to the western side of Nullagine Mine Haul Road.</p> <p>Nyiyaparli further requested that notification was provided (through KNAC) or any road closures along the Nullagine Mine Haul Road during construction as Nyiyaparli use this road to access the area for hunting.</p> <p>Nyiyaparli confirmed there were no concerns regarding visual impacts to cultural values from the PTP8 transmission line, or the proposed wind turbine locations being include the Nullagine Pilot Wind Project.</p> <p>However, Nyiyaparli requested inclusion of Soda Springs in the Visual Impact Assessment</p>	<p>Fortescue has designed the transmission line alignment to keep to the west of the Nullagine Mine Haul Road where practicable.</p> <p>Fortescue agreed to notify KNAC of any Nullagine Mine Haul Road closures during construction, ensuring continued access for KNAC representatives.</p> <p>Fortescue has included POI VIA_1 a location approximately 2 km north of the boundary of Soda Springs in the VIA.</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			(VIA) to understand potential visual impacts resulting from proposed wind turbines from the Bonney Downs Wind Farm Project, at this location.	
	9 Oct 2024	Meeting <ul style="list-style-type: none"> Niyaparli HSC, and KNAC. 	Fortescue provided an update on heritage survey work for PTP8 noting all ethnographic and archaeological surveys have been completed.	No feedback from Niyaparli HSC.
	7 Nov 2024	Meeting <ul style="list-style-type: none"> Niyaparli Working Group, and KNAC. 	Fortescue updated the WG on project details for PTP8 and confirmed that a social surrounds consultation was completed in September for PTP8 and the Bonney Downs Wind Project.	Consultation on the project will continue.
	1 Apr 2025	Meeting <ul style="list-style-type: none"> Niyaparli Working Group, and KNAC. 	<p>Fortescue updated the WG on project details for PTP8, including the MDCP for PTP8 and Nullagine Pilot Wind Project and the outcomes of the relevant social surrounds consultation undertaken in September 2024.</p> <p>KNAC queried the timeline for feedback on VIA images. Fortescue advised that images have been taken, and they will need to know which images to provide as soon as possible.</p> <p>Niyaparli requested an understanding of Nullagine Mine Haul Road closures for Bonney Downs wind farm and PTP8 construction activities.</p> <p>KNAC asked Fortescue to confirm if they had received the relevant reports for heritage surveys undertaken along the PTP8 alignment as Fortescue's slide outlines that all Heritage Places are avoided.</p>	<p>Fortescue agreed to notify KNAC of any Nullagine Mine Haul Road closures during construction, ensuring continued access for KNAC representatives.</p> <p>Fortescue confirmed that the relevant heritage survey reports had been received and were aware of 2 new heritage sites that were avoidable.</p>
Palyku	2 Mar 2023	Meeting	Fortescue presented plans for decarbonisation and renewable energy projects across	Fortescue to provide further details of the project including windfarm location showing



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
		<ul style="list-style-type: none"> Palyku Working Group, and Palyku-Jartayi Aboriginal Corporation (PJAC). 	<p>Fortescue operations and within Palyku country. This included development of a wind farm. Four potential options being explored on Palyku country were presented.</p> <p>The WG requested more information on how Palyku can benefit from green energy projects and if these projects will be used to power communities.</p> <p>Fortescue further outlined to the need to measure wind levels to then understand what is possible for building a wind farm. Fortescue explained purpose of the met mast installation to collect this data and outlined that heritage and environmental surveys would occur to clear the area first.</p> <p>Fortescue is keen to discuss the heritage survey schedule for the project with PJAC and what this would look like.</p>	<p>creeks, stream flows, roads, turbines. This action was completed by the following Palyku WG meeting held on 9 March 2023.</p>
	31 May 2023	<p>Meeting</p> <ul style="list-style-type: none"> Palyku HSC, and PJAC. 	<p>Fortescue presented five areas being considered for the proposed wind farm within Palyku country.</p> <p>Fortescue provided further details on the Met Mast and potential locations, noting that archaeological surveys has been completed over the preferred Met Mast location. Heritage surveys required for the remaining two Met Mast options were also presented.</p>	<p>PJAC to confirm suitable dates for Palyku monitors to be present for the Met Mast installation.</p> <p>Met Mast consultation ongoing.</p>
	18 Jul 2023	<p>Meeting</p> <ul style="list-style-type: none"> Palyku Working Group, and PJAC. 	<p>Fortescue presented selected area for investigation for the proposed wind farm, this being Bonney Downs. Fortescue discussed various parts of the project area that are suitable for wind turbines, noting further</p>	<p>No specific outcomes in relation to Bonney Downs wind farm, although the WG requested further information on predicted mining energy usage versus decarbonisation energy production levels.</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			<p>investigations are needed to select the groupings.</p> <p>Fortescue provided further details on the Met Mast and potential locations, noting heritage surveys these areas had been completed and installation of the Met Mast was looking to commence in September 2023. An update on heritage and environmental surveys was also provided.</p>	
	13 Oct 2023	<p>Meeting</p> <ul style="list-style-type: none"> • Palyku HSC, and • PJAC. 	<p>Fortescue provided an update on the proposed wind farm project including selected location being Bonney Downs and looking to include about 200 turbines being created. Fortescue confirmed installation of the met mast is in underway.</p> <p>Fortescue noted commencement of social surrounds consultation in 2024 for the proposed Bonney Downs project.</p>	<p>Fortescue commitment to undertake social soundings consultation, Traditional Ecological Knowledge (TEK) surveys, and other environmental studies such as Flora and Vegetation, Terrestrial Fauna, and Bird and Bat surveys. Fortescue to provide a full list of survey requirements for Palyku in 2024 calendar year.</p>
	3 Nov 2023	<p>Meeting</p> <ul style="list-style-type: none"> • Palyku Working Group, and • PJAC. 	<p>Fortescue provided an overview of the decarbonisation targets and major projects currently proposed including introducing the Bonney Downs Wind Farm project to the WG. This included commencement of social surrounds consultation in 2024.</p> <p>PJAC advised that the impacts to the Seven Sisters heritage place should be avoided. Fortescue advised that they would be seeking to undertake a Cultural Constraints mapping trip to better understand the Bonney Downs project area and any highly sensitive heritage areas.</p> <p>Palyku requested further information on potential impacts to bird life as studies progress.</p>	<p>Fortescue committed to coordinate a meeting with PJAC to discuss the social surroundings process, including consultation requirements and expected outputs. Fortescue to provide examples of social surroundings from other NTGs.</p> <p>Fortescue to determine if proposed Bonney Downs wind farm can avoid Palyku #2 determination area.</p> <p>The WG advised of their preference for overhead powerlines over underground as they are less destructive to the land. Further request for Fortescue to consider exploring the option of putting powerlines on the ground in pipework.</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
	7 May 2024	Meeting <ul style="list-style-type: none"> Palyku HSC, and PJAC. 	Fortescue provided a Decarb project overview.	No comments about Bonney Downs.
	8 May 2024	Meeting <ul style="list-style-type: none"> Palyku Working Group, and PJAC. 	<p>Fortescue provided an update on the Bonney Downs Wind Project. The WG noted that [Bonnie] creek through the BC Iron mining area has high cultural value.</p> <p>Fortescue advised that the wind project would avoid the creekline as much as possible but some road crossings with culverts may be required. The WG raised concerns about culverts and the potential impacts.</p> <p>Fortescue advised that the Nullagine Camp would be reopened for the project.</p> <p>PJAC asked about construction materials. Fortescue confirmed that materials would be shipped to Port Hedland and transported via road train to the site. Some road upgrades would be required, however no sealed roads were planned at present.</p>	<p>Fortescue committed to advise PJAC of any proposed shire road upgrades (Hillside-Woodstock and Hillside-Bonney Downs roads) including any tenure requirements once known, and the impact on access roads for the public.</p> <p>Fortescue confirmed an 8-week review period would be provided for PJAC to review major approval submissions and offered to pay for an independent consultant if required.</p>
	24 – 28 Jun 2024	On site consult <ul style="list-style-type: none"> Palyku representatives, PJAC, and Terra Rosa. 	<p>First social surrounds consultation for proposed Bonney Downs Wind Project (2024_PAL_SSC_Trip2). Consult included presentations on Social Surroundings Factor, project details, approvals strategy and timeline, and status of social surroundings studies to date.</p> <p>Field visits were undertaken at the direction of Palyku and included helicopter flights over the proposed turbine, transmission line and associate infrastructure footprint; a visit to old</p>	<p>Palyku consider the wind project will have significant impact on the cultural values of Bonnie Pool, mesas and other places of significance in the cultural landscape.</p> <p>As a result of the social surrounds trip, Palyku requested:</p> <ul style="list-style-type: none"> Subsequent on-country consultation between PJAC Board and Elders,



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			<p>BC Iron Mine; a visit to Bonnie Pool; and driving the alignment of the proposed PTP8 transmission line following BC Iron Rd to Palyku's native title boundary.</p> <p>During the trip, Palyku raised concerns about potential visual impacts of the wind turbines on the cultural landscape for Palyku and other groups who live locally and travel along Marble Bar Rd to and from Nullagine. Concerns regarding potential impacts to water ways and catchment flows, groundwater levels and quality, and impacts to birds' flight patterns were also discussed.</p>	<ul style="list-style-type: none"> Fortescue to consider the use of augmented reality to consult on potential visual impacts, Continued access to Bonnie Pool and Fortescue to maintain an access road to the pool, and Avoid crossing creeks if possible, otherwise design the project to minimise the number of creek crossings. <p>Fortescue will continue investigations and studies to address the above outcomes of the social surrounds trip and continue consultation with Palyku and PJAC on the project.</p>
	19 Jul 2024	Email PJAC	<p>PJAC advise all SSC and TEK trips to be put on hold until further notice, due to limited capacity of heritage team and Palyku representatives, and preferred consultancy, to undertake surveys and consults to agreed schedule.</p> <p>PJAC also requested more engagement on the design of social surrounds consultation.</p>	<p>Fortescue acknowledged request and postponed survey/consultation trips until further notice.</p> <p>PJAC to provide dates for meeting to discuss consultation framework for social surrounds trips.</p>
	24 Jul 2024	Email PJAC	<p>PJAC requested workshop with Fortescue and PJAC's consultants to discuss the social surroundings and the consultation process.</p>	<p>Workshop and meeting proposed for 2 Aug 2024.</p>
	2 Aug 2024	Meeting <ul style="list-style-type: none"> PJAC, and Terra Rosa Consulting (Terra Rosa). 	<p>Workshop held with PJAC, their consultant, and Fortescue to discuss the social surrounds consultation process and concerns raised by Palyku during Bonney Trip 1 (2024_PAL_SSC_Trip2).</p> <p>The workshop addressed the ongoing nature of social surrounds consultation and that there will be more opportunities for Palyku to provide</p>	<p>It was acknowledged by all parties this is an ongoing consultation process and further information about the project would be provided at subsequent consults.</p> <p>PJAC requested opportunity to review presentation materials prior to social surrounds trips to better inform the Palyku representatives that will be attending on the</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			feedback on the proposed activities. It was also noted that the purpose of the first trip was to document Palyku's concerns on a range of social surroundings values such as access and use of country, culturally significant plants and animals, and other concerns about the project. This information will inform the studies and assessments Fortescue will undertake to address Palyku's concerns and present these at future consultation.	objectives of the trip. Fortescue agreed to schedule pre-survey meetings to review presentation materials. PJAC also requested more information on the location of the wind turbines and whether alternative locations were considered.
	20 Sep 2024	Email <ul style="list-style-type: none"> PJAC. 	PJAC advised that 2024_PAL_SSC_Trip4 (Bonney Trip 2) rescheduled for 1 – 4 Oct 2024 to be cancelled / rescheduled again, due to availability of Palyku representatives.	Fortescue acknowledged cancellation and noted the trip dates proposed for November 2024, would become 2024_PAL_SSC_Trip4 (Bonney Trip 2).
	26 Sept 2024	Meeting <ul style="list-style-type: none"> Palyku Working Group, and PJAC. 	Fortescue provided an update on the proposed Bonney Downs Wind project, including details of the project activities that were presented during the social surrounds consult in June 2024. Fortescue noted the project layout will be redesigned to avoid culturally sensitive mesas. An update on the ongoing research on the bird and bat studies in collaboration with Murdoch Uni and requirements for road updates to transport turbine blades was also provided. The WG raised concern about traffic and safety while transporting the blades on public roads and the potential for unauthorised personnel accessing sensitive cultural areas.	Fortescue agreed to Palyku monitors being present for ground clearing activities for the Bonney Downs project and for the road upgrades. Further consultation is required between Fortescue and Palyku regarding concerns over the use of Hillside-Bonney Downs Road.
	11 Oct 2024	Meeting <ul style="list-style-type: none"> Palyku HSC, and PJAC. 	Fortescue provided an update on heritage surveys and social surrounds consultation conducted to date for the Bonney Downs project. The update included ongoing studies and investigations being undertaken to address	The WG requested consideration for the PJAC directors to be onsite for social surrounds consultation, and providing opportunity for larger numbers to attend. Fortescue to continue surveys and collaboration with Palyku to progress and



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			<p>the concerns raised to date by Palyku during consultation.</p>	<p>minimise concerns relating to the project development.</p>
	<p>31 March – 3 April 2025</p>	<p>On site consult</p> <ul style="list-style-type: none"> • Palyku representatives, • PJAC, and • Terra Rosa. 	<p>Second social surrounds consultation for proposed Bonney Downs Wind Project (2025_PAL_SSC_Trip1). The consult included updates on the project design to address concerns raised by Palyku on previous consultations, present the outcomes of completed studies, and inform Palyku of management actions to be included in the ERD prior to receiving the draft for review.</p> <p>Field visits were undertaken to Bonnie Creek, Bonnie Pool, and various locations to view augmented reality images of the proposed Wind Turbines as part of the Visual Impact Assessment (VIA).</p> <p>During the trip, Palyku raised concerns about access to hunting areas; possible disturbance of traditional food sources due to noise impacts; expressed their presence for minimising creek crossings with the understanding that that would increase total disturbance; and to minimise disturbance of water in the landscape.</p>	<p>As a result of the social surrounds trip, Palyku requested ongoing consultation with the PJAC board and suggested a visit to a working wind farm.</p> <ul style="list-style-type: none"> • To manage impacts to waterflow, Palyku requested Fortescue not place poles within creeks and creek crossings to be either low level floodways or box style culverts. • During the consultation, Fortescue confirmed continued access to Bonnie Pool would be maintained and that TEK surveys will be undertaken. <p>Fortescue will continue investigations and studies to address concerns raised during the social surrounds trip and continue consultation with Palyku and PJAC on the project.</p>
	<p>21 – 22 May 2025</p>	<p>Meeting</p> <ul style="list-style-type: none"> • Palyku HSC, • Palyku Working Group, and • PJAC. 	<p>Fortescue provided a project update on Bonney Downs Wind Farm and PTP8, noting the completion of geotechnical investigations and commencement of early works. This update also provided information regarding the status of relevant Approvals including environmental approvals (NVCP and Mining Proposal/Closure Plan) and Heritage approvals (survey works).</p> <p>An overview of the project technical details and milestones with a timeline was also presented</p>	<p>Fortescue noted that PJAC is provided the same opportunity to input into ERD applications as other Native Title Parties.</p> <p>Fortescue clarified that there was no intention to restrict access and acknowledged the firm decision regarding the project location. Fortescue committed to maintaining transparency and providing</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			<p>with an approvals overview for Bonney Downs project.</p> <p>Lastly, Fortescue outlined the outcomes from the Social Surrounds Consultation undertaken to date, with the most recent trip occurring 31 March – 3 April 2025 (Trip 2)</p> <p>PJAC queried the process around the ERD submission and if they will be provided the same input as other Native Title Parties with similar submissions.</p> <p>PJAC raised concerns to the proposed project location, specifically regarding traditional activities such as hunting and pastoral operations. PJAC noted the proposed mitigation measures to specific values do not adequately address the potential loss of cultural heritage and intergenerational connection to the land.</p> <p>PJAC noted that the initial understanding of the project was limited, and subsequent information has revealed a more significant impact than originally anticipated.</p>	<p>ongoing updates to the PJAC Working Group.</p> <p>Fortescue noted that feedback from cultural and environmental surveys and Working Group meetings has been incorporated into the project design to minimise impacts where possible.</p>
	20 – 21 August 2025	<p>Meeting – Working Group (Day 1) and ERD review workshop (Day2)</p> <p>Palyku Working Group, and Palyku-Jartayi Aboriginal Corporation (PJAC).</p>	<p>Fortescue noted that PJAC had been provided with an early version of the ERD document and sought comments from the Board and formal response from PJAC.</p> <p>Board members had various questions about the project, and requested further advice to be provided at the subsequent working group meeting, including:</p> <ul style="list-style-type: none"> - Carbon credits and the financial benefit of decarbonisation. Project Manager (PM) agreed to provide this. 	<p>PJAC will provide response to ERD review formally to Fortescue on 22 August 2025.</p> <p>Fortescue representatives agreed to provide advice on each of the points raised by Palyku representatives at the subsequent Working Group meeting.</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
			<ul style="list-style-type: none"> - How the base of the turbines will be secured to ensure unauthorised entry will be managed. PM to provide this. - What environmental monitoring will be undertaken through the project life. Manager Primary Environmental Approvals to provide. - Opportunities to fund a Palyku Ranger team to support works in the BD area. First Nations Team to advise on process and considerations for funding. 	
	25 August 2025	Response to draft ERD which was provided to Palyku for comment.	Fortescue provided the ERD draft for comment ahead of submission.	PJAC provided commentary on aspects of the studies and concerns of interest to their people.
	19 November 2025	Meeting – Working Group Palyku Working Group, and Palyku-Jartayi Aboriginal Corporation (PJAC).	Fortescue presented on the approvals timelines, options to paint blades to mitigate bird strikes, survey requirements for 2026 for Bonney Downs footprint, southern turbine placement considerations, new met mast location proposed, layout of revised turbine locations, timeline and information about future environmental surveys and key construction activities planned.	<p>The Palyku Working Group queried Fortescue's management of wind farm waste (including the disposal of damaged blades).</p> <p>Fortescue agreed to providing a waste management plan for wind farm waste (including specific components).</p> <p>The Palyku Working Group noted the painted blades would not mitigate bird strikes at night.</p> <p>Fortescue advised that additional measures are being considered to mitigate nighttime impacts, including the use of noise.</p> <p>The Palyku Working Group raised concerns around potential community impact if noise mitigation measures are installed.</p> <p>Fortescue confirmed that studies are undertaken to understand possible noise impacts on communities.</p>



Stakeholder	Date	Engagement Type & List of Participants	Topics raised / Discussed	Response / Outcome
				<p>PJAC noted a substantial portion of the revised turbine layout falls outside of ethnographic surveyed area and as such, could not provide comment on the revised layout.</p> <p>PJAC queried the suitability of historical social surrounds consultation / studies given the revision of the design.</p> <p>Fortescue noted historical consultation / studies were undertaken on a 'worst case' scenario but will confirm whether further social surroundings consultation / studies are required for areas where design has altered.</p>



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5 OBJECTIVES AND PRINCIPLES OF THE EP ACT

The EP Act has five core principles of environmental protection, which align with the principles of Ecologically Sustainable Development outlined in section 3A of the EPBC Act. Table 5-1 describes how each of the five principles of the EP Act have been applied to the Proposal.

Table 5-1: Principles of Environmental Protection

Principle	Consideration of principle
<p>1. The precautionary principle</p> <p>Where there are threats of serious irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</p> <p>In the application of the precautionary principle, decisions should be guided by:</p> <ul style="list-style-type: none"> • Careful evaluation to avoid, where practicable, serious or irreversible damage to the environment, and • An assessment of the risk-weighted consequences of various options. 	<p>A comprehensive desktop survey and field studies were undertaken within the DE to assess the impact of the Proposal. Studies included:</p> <ul style="list-style-type: none"> • Flora and Vegetation, • Terrestrial fauna, including subterranean fauna, • Bird and Bat Monitoring, • Traditional Ecological Knowledge surveys, • Heritage surveys, • Noise and Vibration Assessment, • Visual impact assessment, • Dust assessment, • Hydrological and hydrogeological assessment, and • Soil and landform assessment. <p>These scientific studies were used to identify the potential impacts of each Key Environmental Factor. Once identified, avoidance and mitigation measures were proposed to ensure these impacts are environmentally acceptable.</p> <p>If additional studies are completed, mitigations and management measures will be further refined.</p> <p>As described in Section 3.1.2, alternatives to the Proposal were considered including the Proposal location and the type of renewable project. Based on this options analysis, the Proposal was deemed the most suitable option to progress.</p>
<p>2. The principle of intergenerational equity</p> <p>The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.</p>	<p>The Proposal is for a renewable energy development that has the potential to significantly reduce the reliance on fossil fuel power for Fortescue's critical mineral operations, reducing greenhouse gas emissions and resulting in associated beneficial climate change impacts. The Proposal will allow Fortescue to cut down Scope 1 and Scope 2 emissions from its operations by at least 1.5 million TCO₂-e per year by replacing diesel and gas-fired stationery power generation with renewable sources. The proposal will also make a sustained contribution to WA's economy through provision of jobs and long-term clean energy.</p> <p>The Proposal will ensure the health, diversity and productivity of the environment is maintained by retaining as much habitat as possible and by minimising environmental impacts where practicable.</p> <p>The anticipated intergenerational benefits could be delivered ensuring no more than 1.01% of the vegetation within the DE is lost, including avoidance or</p>



Principle	Consideration of principle
<p>3. The principle of the conservation of biological diversity and ecological integrity</p> <p>Conservation of biological diversity and ecological integration should be a fundamental consideration.</p>	<p>effective mitigation of impacts on species of conservation significance.</p> <p>The Proposal meets the principle of conservation of biological diversity and ecological integrity by reducing the clearing of native vegetation within the DE, where practicable.</p> <p>Additionally, as discussed above the Proposal will reduce greenhouse gas emissions, contributing to the protection of biodiversity from the impacts of global warming.</p> <p>Lastly, Fortescue in partnership with the Harry Butler Institute, Murdoch University are developing a research programme to understand the potential impacts to avian and bat fauna from wind generation projects.</p>
<p>4. Principles relating to improved valuation, pricing, and incentive mechanisms</p> <ul style="list-style-type: none"> • Environmental factors should be included in the valuation of assets and services. • The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement. • The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste. • Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, which benefit and/or minimise costs to develop their own solutions and responses to environmental problems. 	<p>The proponent acknowledges the need for improved valuation, pricing and incentive mechanisms and has aimed to pursue these principles when appropriate. For example:</p> <ul style="list-style-type: none"> • Environmental factors were considered to determine the location of the IDF, including avoidance of high value areas (as discussed further in Chapters 0 to 10). • By its nature, the Proposal will not generate intractable or large volume waste streams, with hydrocarbon and putrescible wastes management during construction and operations being the key considerations, which can be readily contained and managed through standard practices, and • The cost of eventual decommissioning and rehabilitation has been incorporated into the financial modelling for the Proposal.
<p>5. The principle of waste minimisation</p> <p>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</p>	<p>Waste management will be addressed during construction and operation activities to avoid and reduce waste, reuse and recycle where practicable, and treat and/or dispose in accordance with regulated requirements.</p>



6 ENVIRONMENTAL FACTORS AND OBJECTIVES

The EPA environmental factors and objectives, and their relevance to the Proposal are provided in Table 6-1.

Table 6-1: Identification of Preliminary Key Environmental Factors

Factor	Objective	Relevance to Proposal	Key factor
Sea			
Benthic Communities and Habitats	To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained.	No credible pathway – the DE is not located in or close to the marine environment.	No
Coastal Processes	To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected.		
Marine Environmental Quality	To maintain the quality of water, sediment and biota so that environmental values are protected.		
Marine Fauna	To protect marine fauna so that biological diversity and ecological integrity are maintained.		
Land			
Flora and Vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.	Credible pathway – the Proposal will involve the clearing of up to 910.26 ha of native vegetation.	Yes
Terrestrial Fauna	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	Credible pathway – the Proposal will involve the clearing of up to 910.26 ha of fauna habitat.	Yes
Subterranean Fauna	To protect subterranean fauna so that biological diversity and ecological integrity are maintained.	Managed under alternative approval regime – Water abstraction for construction and operation will be undertaken in accordance with an existing 5C licence to take water under the RIWI Act (GWL171278(7)). Significant impacts are not considered likely as a result of activities within this Proposal.	No



Factor	Objective	Relevance to Proposal	Key factor
Landforms	To maintain the variety and integrity of significant physical landforms so that environmental values are protected.	Credible pathway – the DE contains mesas and is within the same catchment as the Fortescue Marsh, which are both considered to be important landforms. Additionally, the Proposal will require clearing of the Lower Hamersley group geological unit, characterised by Banded Iron Formations, subterranean fauna habitat, short-range endemic (SRE) habitat and result in visual changes to the landscape. However, through preliminary assessment and analysis, significant impacts are not considered likely, and this factor has been covered in Chapter 10.3 (Other Environmental Factors).	No
Terrestrial Environmental Quality	To maintain the quality of land and soils so that environmental values are protected.	Credible pathway – Potential of disturbing ASS, land erosion and contamination of soil (including potential contamination associated with water pipeline failure, application of water to roads or irrigation of treated wastewater). Significant impacts are not considered likely due to the fact the foundations for the wind turbines and supporting infrastructure will be relatively shallow (approximately 4 m but up to 35 m for some of the narrower bores), and the sporadic nature of any foundations. Through preliminary assessment and analysis, significant impacts are not considered likely, and this factor has been covered in Chapter 10.2 (Other Environmental Factors).	No
Water			
Inland Waters	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.	<p>Surface Water</p> Credible pathway – The DE is within the same catchment as the Fortescue Marsh, and the Proposal also requires construction of watercourse crossings. It should be noted that the turbines and associated infrastructure are located approximately 29 km from the Fortescue Marsh and Christmas Creek mine is located between the DE and the Fortescue Marsh. Significant impacts are not considered likely, and this factor has	No



Factor	Objective	Relevance to Proposal	Key factor
		<p>been covered in Chapter 10.1 (Other Environmental Factors).</p> <p>Groundwater</p> <p>Managed under alternative approval regime – Water abstraction for construction and operation will be undertaken in accordance with the existing 5C licence to take water (GWL171278(7)). Significant impacts are not considered likely as a result of activities within this Proposal. This factor has been covered in Chapter 10.1 (Other Environmental Factors).</p>	
Air			
Air Quality	To maintain air quality and minimise emissions so that environmental values are protected.	No credible pathway – construction of the Proposal will require up to 4 MW of instantaneous load, which is likely to be provided by diesel electricity generation infrastructure. The Proposal is not anticipated to effect local or regional air quality and operationally will decarbonise existing energy supply. Remote location with limited sensitive receptors nearby.	No
Greenhouse Gas Emissions	To reduce net greenhouse gas emissions in order to minimise the risk of environmental harm associated with climate change	Does not exceed guideline threshold (EPA, 2023d) – Construction or operational activities not anticipated to exceed the threshold of 100,000 tonnes CO ₂ -e per year for scope 1 or 2 emissions.	No
People			
Social Surroundings	To protect social surroundings from significant harm.	Credible pathway – the Proposal will have a visual impact, will result in an increase in noise, dust and vibration and will result in the clearing of plants and animals species of traditional value and crossing of several waterways of significance to Traditional Owners and pastoralism.	Yes
Human Health	To protect human health from significant harm.	No credible pathway – the Proposal does not involve a radiation source or emissions of radiation.	No



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7 FLORA AND VEGETATION

7.1 EPA Objective

The WA EPA objective for the flora and vegetation environmental factor is ‘*To protect flora and vegetation so that biological diversity and ecological integrity are maintained*’ (EPA, 2016b).

The WA EPA defines flora as ‘*native vascular plants*’, and vegetation as ‘*groupings of different flora patterned across the landscape that occur in response to environmental conditions*’ (EPA, 2016b).

7.2 Policy and Guidance

The following EPA policies and guidelines have been considered during the preparation of this ERD and the supporting technical studies:

- Environmental Guidance for Planning and Development. Guidance Statement No. 33. Government of WA (EPA, 2008),
- Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016a),
- Environmental Factor Guideline – Flora and Vegetation (EPA, 2016b),
- Statement of Environmental Principles, Factors and Objectives (EPA, 2023a), and
- Instructions – How to Prepare an Environmental Review Document (EPA, 2024).

The Environmental Factor Guideline has been considered during the identification of flora and vegetation values within the DE. The issues identified in the guideline have been considered in relation to potential impacts from the Proposal.

Flora and vegetation surveys for the Proposal have been planned and executed in accordance with the EPA’s technical guidance for this factor. Any survey limitations relative to the technical guidance are noted in the flora and vegetation survey report (ecologia, 2025a).

Other policy and guidance considered during the preparation of this ERD and the supporting technical studies includes:

- BC Act,
- *Biosecurity Agriculture and Management Act 2007* (BAM Act),
- A guide to the assessment of applications to clear native vegetation, under Part V Division 2 of the *Environmental Protection Act 1986* (DER, 2014),
- ‘Conserving Threatened Ecological Communities’ (Publicly available brochure prepared by the Department of Environment and Conservation in conjunction with National Heritage Trust: Perth, WA) (DEC, 2007),



- National Objectives and Targets for Biodiversity Conservation 2001-2005. (Canberra) (Commonwealth of Australia (CoA), 2001), and
- Environmental Protection (Environmentally Sensitive Areas) Notice 2005. West. Aust. Gov. Gaz. 1163–1166 (State of WA, 2005).

7.3 Studies and Surveys

Detailed flora and vegetation surveys have been completed within the DE and surrounding area to determine baseline environment and inform the design of the Proposal. These surveys are presented in Table 7-1. The total Survey Area is approximately 108,841 ha, while the DE comprises 89,973.86 ha within the Survey Area.



Table 7-1: Flora and Vegetation Studies and Surveys

Report	Survey Timing	Survey Effort
<p>Bonney Downs East Detailed Flora and Vegetation Survey (SLR, 2024); incorporated to IBSA-2025-0268</p>	<ul style="list-style-type: none"> • Installation of sites, mapping and targeted searching: 10th – 18th May 2023. • Re-visiting sites, installing new sites, additional mapping and targeted searching: 29th July – 5th August 2023. 	<ul style="list-style-type: none"> • Bonney Downs East survey area: 31,789.79 ha. • Desktop assessment to evaluate biological values of the survey area and surrounds, including a review of existing physical and biological values, significant species and communities, and other relevant available data. • A detailed flora and vegetation survey and targeted flora assessment in accordance with EPA Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016a). • Quadrat and relevé locations were selected using a combination of aerial photography, topographic features, land system mapping, pre-European vegetation and field observation. At least three sites were chosen to represent each potentially distinct plant community, where possible. Flora within sampling sites were recorded with additional observations recorded opportunistically outside of the sampling sites. Targeted searches for Threatened and Priority flora species and ecological communities were conducted in areas of suitable habitat. Vegetation type and condition were assessed through aerial photography, taxonomic identification and multivariate analysis. • The vegetation dataset consisted of 109 quadrats and relevés.
<p>Bonney Downs North Detailed Flora and Vegetation Assessment (ecologia, 2024); incorporated to IBSA-2025-0268</p> <p>Bonney Downs Consolidated Flora and Vegetation Assessment (ecologia, 2025a); IBSA-2025-0268</p>	<ul style="list-style-type: none"> • Bonney Downs North: 19th – 26th June and 13th – 20th September 2023 (ecologia, 2024). • The remainder of the survey area (excluding Bonney Downs East): 5th – 13th March and 15th – 21st July 2024 (ecologia, 2025a). 	<ul style="list-style-type: none"> • ecologia surveyed the Bonney Downs North survey area and the remainder of the consolidated Survey Area. The results are presented in ecologia (2025a). This survey area is approximately 77,051 ha. • Desktop assessment to evaluate biological values of the survey area and surrounds, including a review of existing physical and biological values, significant species and communities, and other relevant available data. • A two-phase detailed flora and vegetation survey and targeted flora assessment in accordance with EPA Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016a). • Quadrat and relevé locations were selected using a combination of aerial photography, topographic features, land system mapping, pre-European vegetation and field observation. At least three sites were chosen to represent each potentially distinct plant community, where possible. Flora within sampling sites were recorded with additional observations recorded opportunistically outside of the sampling sites. Targeted searches for Threatened and Priority flora species and ecological communities were conducted in areas of suitable habitat.



Report	Survey Timing	Survey Effort
		<p>Vegetation type and condition were assessed through aerial photography, taxonomic identification and multivariate analysis.</p> <ul style="list-style-type: none">• The ecologia (2025a) vegetation dataset consisted of 291 quadrats and relevés.



7.3.1 Limitations

No significant limitations were identified during the SLR, ecologia (2024) or ecologia (2025a) surveys. See Appendix A for a description of the minor limitations of the flora and vegetation surveys.

7.4 Receiving Environment

7.4.1 Regional Vegetation

The Proposal is located within the Chichester subregion (PIL1) and Fortescue subregion (PIL02) of the Pilbara Bioregion, as defined by IBRA. The Chichester subregion (PIL1) is described by Kendrick and Mckenzie (2001) as “undulating Archaean granite and basalt plains include significant areas of basaltic ranges”. The vegetation within this subregion consists of shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* (formerly known as *Triodia pungens*) hummock grasslands, with *Eucalyptus leucophloia* tree steppes on ranges. Land use within the subregion includes grazing, native pasture, conservation, urban and mining (Kendrick & Mckenzie, 2001).

The Fortescue subregion (PIL2) is described by Kendrick (2001) as “Alluvial plains and river frontage”. Extensive salt marsh, mulga-bunch grass, and short grass communities on alluvial plains occur in the east. Deeply incised gorge systems occur in the western (lower) part of the subregion. River gum woodlands fringe the drainage lines. This subregion is noted as being the northern limit of Mulga (*Acacia aneura*). The Millstream aquifer, an extensive calcrete aquifer (originating within a palaeo-drainage valley), lies between the Chichester and Hamersley Ranges and feeds numerous permanent springs in the central Fortescue, supporting large permanent wetlands with extensive stands of river gum and Cadjeput (*Melaleuca*) woodlands. The Fortescue Marsh is the key feature of the subregion within the local area of the Proposal. Land use within the subregion includes grazing, native pasture, unallocated crown land and crown reserves, conservation and Aboriginal land (Kendrick, 2001).

7.4.2 Pre-European Vegetation

Pre-European vegetation mapping based on Beard (2013) describes the remaining extent of five vegetation associations within the DE. The DE is mostly composed of vegetation association 173 (98.34%), which overlaps the Chichester and Fortescue subregions. The remainder of the DE is comprised of vegetation associations 18, 29, 93 and 562. All other vegetation associations each represent less than 1.0% of the DE (Table 7-2). All vegetation associations present within the DE have over 99% extent remaining across both subregions (Table 7-2; Figure 7-1).



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Table 7-2: Pre-European Vegetation Associations within the Development Envelope (Source: Dataset - DPRID, 2019; Statistics - GoWA, 2019)

Vegetation associations	Context	Pre-European extent (ha)	Extent remaining (ha)	Extent remaining (%) ³	Current extent in DBCA managed lands (%)	Area in DE (ha)	Proportion of DE (%)	
18	Mulga <i>Acacia aneura</i> and associated species.	Western Australia	19,892,306.46	19,843,148.07	99.75	6.64	617.52	0.69%
		Pilbara IBRA Region	676,556.72	671,843.35	99.30	25.35		
		Chichester IBRA Sub-Region	30,183.37	30,179.94	99.99	-		
		Fortescue IBRA Sub-Region	65,127.27	65,121.71	99.99	-		
		Shire of East Pilbara	359,372.12	355,446.47	98.91	1.49		
29	Mulga <i>Acacia aneura</i> and associated species.	Western Australia	7,903,991.45	7,898,973.24	99.94	6.28	4.84	0.01%
		Pilbara IBRA Region	1,133,219.76	1,131,712.01	99.87	9.39		
		Chichester IBRA Sub-Region	62,506.95	62,506.95	100.00	-		
		Fortescue IBRA Sub-Region	893,394.62	893,221.87	99.98	9.41		
		Shire of East Pilbara	906,243.49	905,848.35	99.96	7.74		
93	Hummock grassland with scattered shrubs or mallee <i>Triodia</i> spp. <i>Acacia</i> spp., <i>Grevillea</i> spp. <i>Eucalyptus</i> spp	Western Australia	3,044,309.52	3,040,640.98	99.88	1.96	4.84	0.01%
		Pilbara IBRA Region	3,042,114.27	3,038,471.67	99.88	1.96		
		Chichester IBRA Sub-Region	2,940,348.04	2,936,731.54	99.88	2.03		
		Fortescue IBRA Sub-Region	5.21	5.21	100.00	-		
		Shire of East Pilbara	1,709,522.24	1,706,780.57	99.84	2.70		
173	Hummock grassland with scattered shrubs or mallee <i>Triodia</i> spp.	Western Australia	1,753,104.09	1,748,260.83	99.72	13.65	88,484.38	98.34%
		Pilbara IBRA Region	1,752,520.89	1,747,677.63	99.72	13.66		
		Chichester IBRA Sub-Region	1,744,029.51	1,739,189.58	99.72	13.73		

³ The extent remaining vegetation was based on the 2018 Statewide Vegetation Statistics (DBCA, 2019), which contains data of 2018, thus it might be out of date.



Vegetation associations	Context	Pre-European extent (ha)	Extent remaining (ha)	Extent remaining (%) ³	Current extent in DBCA managed lands (%)	Area in DE (ha)	Proportion of DE (%)
<i>Acacia</i> spp., <i>Grevillea</i> spp. <i>Eucalyptus</i> spp	Fortescue IBRA sub-Region	4,310.96	4,310.96	100.00	-		
	Shire of East Pilbara	1,085,704.89	1,081,937.46	99.65	9.93		
562 Hummock grassland with scattered bloodwoods & snappy gum <i>Triodia</i> spp., <i>Corymbia dichromophloia</i> , <i>Eucalyptus leucophloia</i>	Western Australia	103,606.82	103,606.82	100.00	3.34	862.28	0.96%
	Pilbara IBRA Region	103,606.82	103,606.82	100.00	3.34		
	Chichester IBRA Sub-Region	3,883.61	3,883.61	100.00	-		
	Fortescue IBRA Sub-Region	99,723.21	99,723.21	100.00	3.47		
	Shire of East Pilbara	38,534.42	38,534.42	100.00	1.17		



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Legend

- ▭ Development Envelope
 - ★ GOV Towns
 - Major Roads
 - Fortescue Rail
 - Roy Hill Rail
 - ▭ Indicative Disturbance Footprint
 - ▭ Approved Disturbance (Nullagine Pilot Wind Farm)
- Pre-European Vegetation Associations
- ▭ 18
 - ▭ 29
 - ▭ 93
 - ▭ 173
 - ▭ 562

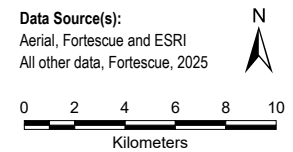


Figure 7-1
 Pre-European Vegetation
 within the Development Envelope

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_007_r1_Pre_Euro
 Fortescue accepts no liability and gives no representation or warranty, express or implied, as to the information provided including its accuracy, completeness, merchantability or fitness for purpose.





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7.4.3 Vegetation Types

Fifteen vegetation types were identified within the DE based on floristic, cluster analysis and statistical results. Three similar *Acacia inaequilatera* dominated vegetation types (AiCpTe1, AiCpTe2, and AiSgTb) were mapped as a mosaic unit as they could not be consistently distinguished using aerial imagery. This area is referred to as 'Mosaic (Mos)' and covers 56,633.25 ha, which represents most of the DE (62.94%).

Table 7-3 and Figure 7-2 details the vegetation types, general vegetation condition, and extent within the DE. Plate 7-1 to Plate 7-4 shows the vegetation types within the DE.



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Table 7-3: Vegetation Type Descriptions within the Development Envelope

Landform and Soils	Vegetation Types	Vegetation Type Description	General Vegetation Condition	Area within DE (ha)	Proportion of DE (%)
Gravelly plains and undulating plains with reddish-brown clay-loam soils.	AaCpTw	<i>Acacia tall open shrubland</i> <i>Acacia aptaneura</i> , <i>Acacia tetragonophylla</i> tall open shrubland; <i>Corchorus parviflorus</i> low open shrubland; <i>Triodia wiseana</i> , <i>Enneapogon polyphyllus</i> , <i>Aristida contorta</i> low open tussock grassland.	Excellent	346.19	0.38%
Gravelly plains and undulating plains with reddish-brown clay-loam soils.	AaEp	<i>Acacia tall open shrubland</i> <i>Acacia aptaneura</i> , <i>Acacia pruinocarpa</i> tall open shrubland; <i>Enneapogon polyphyllus</i> , \pm <i>Triodia brizoides</i> , \pm <i>Triodia longiceps</i> low open tussock/hummock grassland.	Degraded to Excellent	467.21	0.52%
Primary stony plains with red-brown clay-loam soils.	AaTe	<i>Acacia tall open shrubland</i> <i>Acacia aptaneura</i> , <i>Acacia pruinocarpa</i> , <i>Acacia bivenosa</i> tall open shrubland; <i>Triodia epactia</i> low open hummock grassland.	Excellent	589.26	0.65%
Plains and undulating plains	AaTs	<i>Acacia tall open shrubland</i> <i>Acacia ancistrocarpa</i> , <i>Acacia aptaneura</i> tall open shrubland; <i>Triodia scintillans</i> low hummock grassland.	Excellent	400.81	0.45%
Rocky creeks and minor gullies.	AcTe	<i>Acacia tall sparse shrubland</i> <i>Acacia cyperophylla</i> var. <i>omearana</i> (P1), <i>Acacia tumida</i> var. <i>pilbarensis</i> tall sparse shrubland; <i>Triodia epactia</i> , <i>Triodia longiceps</i> mid sparse hummock grassland.	Very Good to Excellent	163.89	0.18%
Plains and undulating plains.	AeTe	<i>Triodia low hummock grassland</i> <i>Acacia eriopoda</i> tall sparse shrubland; <i>Triodia epactia</i> , <i>Triodia longiceps</i> low hummock grassland.	Excellent	66.42	0.07%
Drainage lines and floodplains.	AmTe	<i>Acacia tall closed shrubland</i> <i>Acacia monticola</i> tall closed shrubland; <i>Triodia epactia</i> low open hummock grassland.	Excellent	86.79	0.10%



Landform and Soils	Vegetation Types	Vegetation Type Description	General Vegetation Condition	Area within DE (ha)	Proportion of DE (%)
Sandy creek.	EcAcCs	<i>Eucalyptus mid open woodland</i> <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> , ± <i>Melaleuca argentea</i> mid open woodland; <i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Acacia trachycarpa</i> tall open shrubland; * <i>Cenchrus setiger</i> , <i>Triodia longiceps</i> low tussock/hummock grassland.	Degraded to Excellent	88.27	0.10%
Low stony hills, plains, and undulating plains sometimes with dissecting drainage lines. Often with quartz and calcrete. Reddish brown clay-loam.	EIAbTI	<i>Eucalyptus low open woodland</i> <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , ± <i>Corymbia hamersleyana</i> low open woodland; <i>Acacia bivenosa</i> mid sparse shrubland; <i>Triodia longiceps</i> , <i>Triodia wiseana</i> , ± <i>Triodia brizoides</i> low hummock grassland.	Very Good to Excellent	15,183.93	16.88%
Low rocky hills and ridges with red-brown clay-loam soil	EIGwTe	<i>Triodia low hummock grassland</i> <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , ± <i>Corymbia hamersleyana</i> low open woodland; <i>Grevillea wickhamii</i> mid sparse shrubland; <i>Triodia epactia</i> , <i>Eriachne lanata</i> , <i>Eriachne mucronata</i> low hummock/tussock grassland.	Excellent	4,033.24	4.48%
Minor and major creeks and minor gullies.	EvAcCc	<i>Eucalyptus mid open woodland</i> <i>Eucalyptus victrix</i> , ± <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> mid open woodland; <i>Acacia coriacea</i> subsp. <i>pendens</i> , <i>Acacia pyrifolia</i> var. <i>pyrifolia</i> , <i>Atalaya hemiglauca</i> tall open shrubland; * <i>Cenchrus ciliaris</i> , <i>Triodia longiceps</i> , <i>Triodia epactia</i> low tussock/hummock grassland.	Degraded to Excellent	4,260.76	4.74%
Low hills and plains with clay soils, often stony.	VfAI	<i>Aristida low tussock grassland</i> * <i>Vachellia farnesiana</i> mid sparse shrubland; <i>Aristida latifolia</i> , <i>Cynodon convergens</i> , <i>Eriachne mucronata</i> low tussock grassland.	Poor to Excellent	6,809.26	7.57%



Landform and Soils	Vegetation Types	Vegetation Type Description	General Vegetation Condition	Area within DE (ha)	Proportion of DE (%)
<p>AiCpTe1: Low stony hills and undulating plains. Mostly ironstone and basalt with some quartz and calcrete. Reddish brown clay-loam soils.</p> <p>AiCpTe2: Primarily associated with minor drainage lines intersecting low stony hills and undulating plains. Reddish brown clay-loam soils.</p> <p>AiSgTb: Primarily associated with rocky ridges and outcrops. Reddish brown clay-loam soils.</p>	Mosaic	<ul style="list-style-type: none"> ○ <i>Triodia low hummock grassland</i> • Mosaic of AiCpTe1, AiCpTe2 and AiSgTbAiCpTe1: <i>Acacia inaequilatera</i> tall sparse shrubland; ±<i>Corchorus parviflorus</i> low sparse shrubland; <i>Triodia epactia</i>, ±<i>Triodia brizoides</i> low hummock grassland. • AiCpTe2: <i>Acacia inaequilatera</i> tall sparse shrubland; <i>Corchorus parviflorus</i> low sparse shrubland; <i>Triodia epactia</i> low hummock grassland. • AiSgTb: <i>Acacia inaequilatera</i>, <i>Hakea lorea</i> subsp. <i>lorea</i> tall open shrubland; <i>Senna glutinosa</i> mid open shrubland; <i>Triodia brizoides</i>, <i>Triodia epactia</i>, <i>Cymbopogon ambiguus</i> low hummock/tussock grassland. 	Poor to Excellent	56,633.25	62.94%
-	Cleared	Areas that have been completely cleared of native vegetation, such as access tracks and historic mining areas.	-	844.56	0.94%
Total				89,973.86	100%

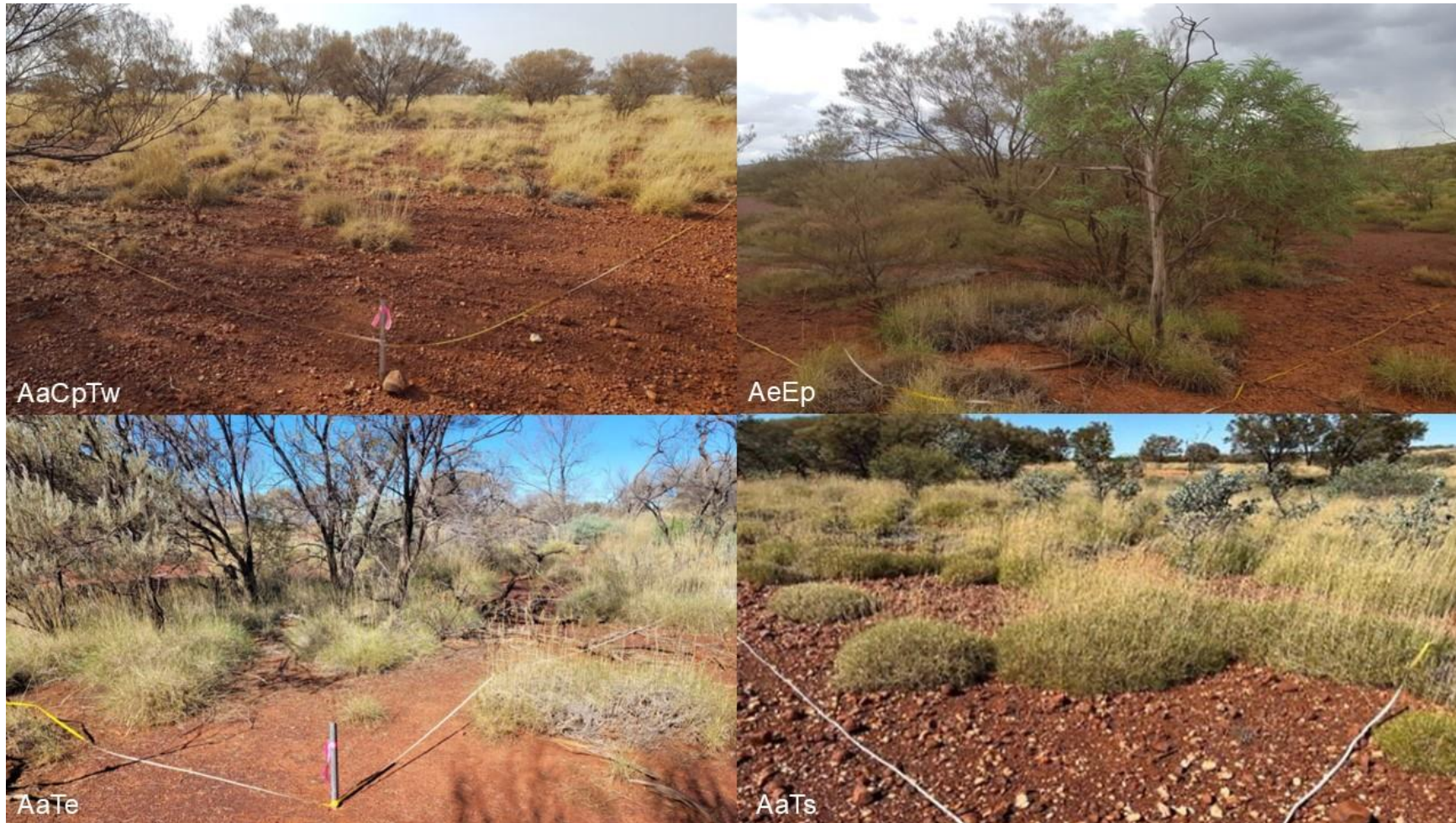


Plate 7-1: Vegetation Types within the Development Envelope (ecologia, 2025a; SLR, 2024).



Plate 7-2: Vegetation Types within the Development Envelope (ecologia, 2025a; SLR, 2024).



Plate 7-3: Vegetation Types within the Development Envelope (ecologia, 2025a; SLR, 2024).



Plate 7-4: Vegetation Types within the Development Envelope (ecologia, 2025a; SLR, 2024).



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Legend

Development Envelope	AaTe
GOV Towns	AaTs
Major Roads	AcTe
Fortescue Rail	AeTe
Roy Hill Rail	AhCspYTe
Indicative Disturbance Footprint	AmTe
Approved Disturbance (Nullagine Pilot Wind Farm)	AoTe
Cleared	EcAcCs
AaCpTw	EIAbTI
AaEp	EIGwTe
	EvAcCc
	Mos
	VfAI

Data Source(s):
Aerial, Fortescue and ESRI
All other data, Fortescue, 2025

Vegetation Type

0 2 4 6 8 10
Kilometers

N

Figure 7-2
Vegetation Types
within the Development Envelope

Requested By: R. Dorji
Date: 1/28/2026
Drawn By: R. Kerr
Size: A4L
Revised By: rykerr
Revision: 1
Approved By:
Confidentiality: 0
Scale: 1:300,000

Coordinate System: GDA 1994 MGA Zone 50
Project Name: 4519OP002_MP_EN_0093_PartIV
Document Name: 4519OP002_MP_EN_0093_008_r1_Veg_Types

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7.4.4 Vegetation Condition

Vegetation condition was recorded in accordance with EPA (2016). Most vegetation within the DE was assessed as ‘Excellent’ (total of 90.07%; Table 7-4). The remainder of the vegetation ranged from ‘Degraded’ (1.93%) to Very Good (3.58%), with 0.94% of the DE having been completely cleared. Most degradation observed within the DE was associated with riparian habitat, in which dense **Cenchrus ciliaris* (Buffel Grass) and **Cenchrus setiger* (Birdwood Grass) infestations were sometimes present.

Most of the cleared areas are associated with the former BC Iron mine site, which also shows infestations of **Calotropis procera* (Calotrope), **Aerva javanica* (Kapok Bush), and **Cenchrus ciliaris* (Buffel Grass). These areas of weed infestation tend to be restricted to historically disturbed sites, and the surrounding undisturbed vegetation is usually in Very Good to Excellent condition (ecologia, 2025a).

A breakdown of vegetation condition by vegetation types is provided in Table 7-5.

Table 7-4: Vegetation Condition within the Development Envelope

Vegetation Condition	Area within DE (ha)	Proportion of DE (%)
Excellent	81,043.21	90.07%
Very Good	3,220.24	3.58%
Good	484.83	0.54%
Poor	2,647.51	2.94%
Degraded	1,733.51	1.93%
Total*	89,129.30	99.06%

*The total area of the DE is 89,973.86, including 844.56 ha (0.94%) of previously cleared areas, which is not included in the vegetation condition mapping.

Table 7-5: Vegetation Condition per Vegetation Type within the Development Envelope

Vegetation Types	Vegetation condition within DE (ha)					Total
	Excellent	Very Good	Good	Poor	Degraded	
AaCpTw	346.19	-	-	-	-	346.19
AaEp	150.26	-	147.98	-	168.97	467.21
AaTe	589.26	-	-	-	-	589.26
AaTs	400.81	-	-	-	-	400.81
AcTe	-	163.89	-	-	-	163.89
AeTe	66.42	-	-	-	-	66.42
AmTe	56.77	7.72	9.33	5.03	7.93	86.79
EcAcCs	61.88	4.34	-	-	22.06	88.27
EIAbTI	15,059.34	124.60	-	-	-	15,183.93
EIGwTe	4,033.25	-	-	-	-	4,033.24
EvAcCc	58.22	257.46	229.00	2,181.53	1,534.56	4,260.76
VfAI	3,687.23	2,584.97	98.52	438.54	-	6,809.26

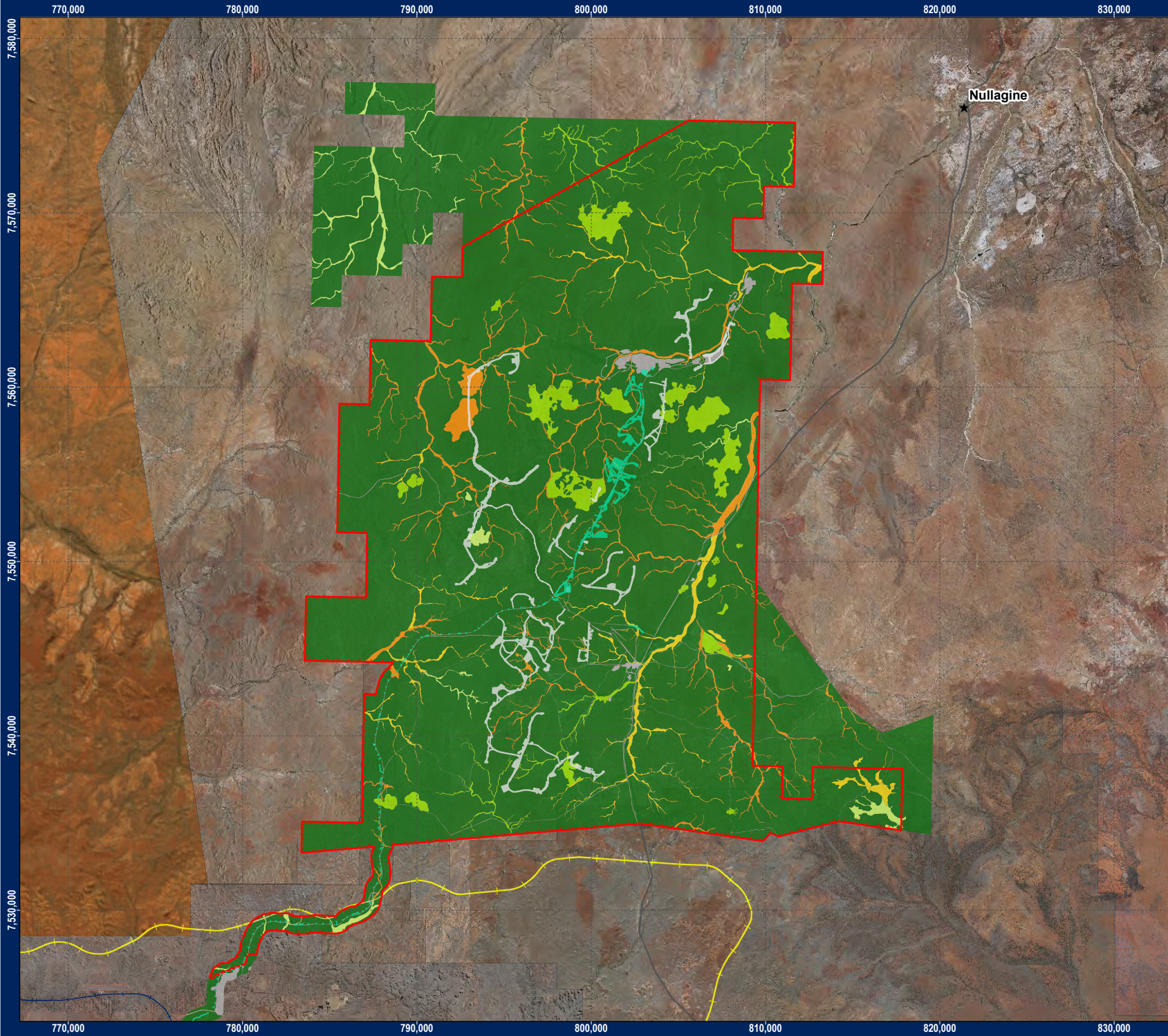


Vegetation Types	Vegetation condition within DE (ha)					Total
	Excellent	Very Good	Good	Poor	Degraded	
Mos (AiCpTe1, AiCpTe2, and AiSgTb)	56,533.58	77.26	-	22.41	-	56,633.25
Total*	81,043.21	3,220.24	484.83	2,647.51	1,733.51	89,129.30

*The total area of the DE is 89,973.86, including 844.56 ha (0.94%) of previously cleared areas.



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Legend

Development Envelope	Excellent
GOV Towns	Very Good
Major Roads	Good
Fortescue Rail	Degraded
Roy Hill Rail	Poor
Indicative Disturbance Footprint	Cleared
Approved Disturbance (Nullagine Pilot Wind Farm)	

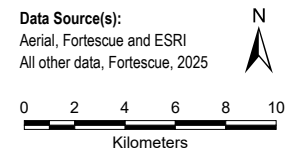


Figure 7-3
 Vegetation Condition
 within the Development Envelope

Requested By: R. Dorji
 Drawn By: R. Kerr
 Revised By: rykerr
 Approved By:
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_009_r1_Veg_Cond

Date: 1/28/2026
 Size: A4L
 Revision: 1
 Confidentiality: 0

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7.4.5 Conservation Significant Vegetation

7.4.5.1 Threatened and Priority Ecological Communities

The DBCA database search did not identify any EPBC Act or BC Act listed Threatened Ecological Communities (TEC) within 50 km of the DE (ecologia, 2025a). Six Priority Ecological Communities (PEC) were identified within 50 km of the DE, including one overlapping the DE (Figure 7-4; Table 7-6):

Table 7-6: Priority Ecological Community within, and in the Vicinity of the Development Envelope

Priority Ecological Community	Location and distance to DE (km)
'Fortescue Marsh (Marsh Land System)' (P1)	Located approximately 9.3 km southwest of the DE. The buffer of this PEC is approximately 4 km southwest of the DE.
'Four plant assemblages of the Wona Land System' (P1, P3)	Located in multiple areas throughout the DE (Figure 7-4).
'Stony saline clay plains of the Mosquito Land system' (P3):	Approximately 5.63 km northeast and outside of the DE.
'Narbung Land System' (P3):	Approximately 37 km south and outside of the DE.
'Freshwater claypans downstream of the Fortescue Marsh - Goodiadarrie Hills on Mulga Downs Station.'(P1)	Approximately 30 km south and outside of the DE.
'Vegetation of sand dunes of the Hamersley Range/Fortescue Valley' (P3)	Approximately 50 km south and outside of the DE.

No vegetation types analogous to any EPBC Act or BC Act listed TECs were recorded during the flora and vegetation surveys.

The DBCA database has records of approximately 20,808.43 ha of the 'Four plant assemblages of the Wona Land System' PEC within 50 km of the DE⁴, most of which (13,338.71 ha) occurs outside the DE.

One vegetation type recorded within the DE, VfAI, was broadly consistent with the 'Four plant assemblages of the Wona Land System' PEC, and specifically the Priority 1 sub-community 'Cracking clays of the Chichester and Mungaroona Range' ecologia (2025a). The 'Cracking clays of the Chichester and Mungaroona Range' is described as: shrubless plain of stony gibber community occurring on the tablelands with very little vegetative cover during the dry season, and ephemerals/annuals and short-lived perennials emerging during the wet season, many of which are poorly known and range-end taxa (DBCA, 2023a). Vegetation type VfAI covers 6,809.26 ha (7.57%) of the DE. Of which 5,225.35 ha has been previously mapped by DBCA as the 'Four plant assemblages of the Wona Land System' PEC (P1, P3). The remaining 1,583.91 ha was not included in the area mapped by DBCA and is considered potential PEC. While the DBCA mapping does not identify the sub-community it is assumed to be the Cracking clays of the Chichester and Mungaroona Range (P1) given that VfAI is analogous to this sub community and the overlap of this vegetation unit with the DBCA mapping.

The vegetation condition for the Cracking clays of the Chichester and Mungaroona Range PEC (P1) and Potential Cracking clays of the Chichester and Mungaroona Range PEC (P1)

⁴ Area calculated based on the DBCA database (2025), excluding buffer radius.



is described in Table 7-7. The majority of the Cracking clays of the Chichester and Mungaroona Range PEC (P1) and Potential Cracking clays of the Chichester and Mungaroona Range PEC (P1) are in 'Excellent' to 'Very Good' condition (92.93% and 89.40%, respectively).

Table 7-7: Vegetation Condition - Priority Ecological Community within the Development Envelope

Priority Ecological Community	Vegetation Condition within DE (ha)				Total (ha)
	Excellent	Very Good	Good	Poor	
Four plant assemblages of the Wona Land System' PEC (Cracking clays of the Chichester and Mungaroona Range P1)*	2,923.74	1932.40	-	369.22	5,225.35
Potential 'Four plant assemblages of the Wona Land System' PEC (Cracking clays of the Chichester and Mungaroona Range P1)**	763.49	652.57	98.52	69.32	1,583.91

*Vegetation type VfAI that overlaps the area previously mapped by DBCA as the 'Four plant assemblages of the Wona Land System' PEC (P1)










**Vegetation type VfAI that does not overlap area previously mapped by DBCA as the 'Four plant assemblages of the Wona Land System' PEC (P1)



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Legend

-  Development Envelope
-  GOV Towns
-  Major Roads
-  Fortescue Rail
-  Roy Hill Rail
-  Indicative Disturbance Footprint
-  Approved Disturbance (Nullagine Pilot Wind Farm)
-  Potential Priority Ecological Communities
-  Priority Ecological Communities

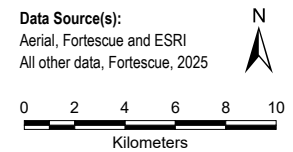


Figure 7-4
 Threatened and Priority Ecological
 Communities within the Development Envelope

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_010_r1_PEC
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7.4.5.2 Riparian, Groundwater Dependent and Potentially Groundwater Dependent Vegetation

Three tree species commonly associated with riparian habitats in the Pilbara are considered potentially groundwater dependent: *Eucalyptus camaldulensis* (river red gum), *Eucalyptus victrix* (coolabah), and *Melaleuca argentea* (silver cadjeput). *Eucalyptus camaldulensis* and *Eucalyptus victrix* are facultative phreatophytes, which are species that may be dependent on groundwater or water from the capillary fringe in environments that have otherwise low available surface derived water, particularly in the arid zone and during extended dry periods (Batini, 2009; Froend, 2009). This is particularly relevant during the Pilbara dry season (April to November) when recharge of the groundwater table is likely to be minimal and alternative water sources are limited (Eamus & Froend, 2006), although they appear to be resilient to fluctuating water table levels and drought (Batini, 2009; Pfautsch, Dodson, Madden, & Adams, 2014). *Melaleuca argentea* is considered an obligate phreatophyte that is reliant on groundwater for its survival. Plant communities in which these species are dominant may be considered groundwater dependent vegetation (GDV) in some situations, and may potentially be impacted by groundwater abstraction, but they do not generally have any specific conservation significance.

Vegetation type EcAcCs (supporting *Melaleuca argentea* and *Eucalyptus camaldulensis*) and parts of EvAcCc that supported *Eucalyptus camaldulensis* were considered to be GDV and accounted for 2,851.92 ha (3.17%) of the DE. The remaining parts of vegetation type EvAcCc (supporting only *Eucalyptus victrix*) is potential a GDV and accounted for 1497.11 ha (1.66%) DE. Combined, this represents a total of 4,349.03 ha of groundwater dependent and potentially groundwater dependent vegetation within the DE.

These vegetation types are also considered riparian vegetation. Most of these Vegetation Types are in 'Poor' to 'Degraded' condition (91.35% of the mapped Groundwater Dependent Vegetation and 75.68% of the mapped Potentially Groundwater Dependent Vegetation).

7.4.5.3 Other Potentially Significant Vegetation

Vegetation that plays a potential role as refuge

The Wona land system has a relatively restricted and patchy regional distribution and supports many plant species restricted to clay soils. This habitat is potentially a refuge for species restricted to clay soils in the Pilbara (ecologia, 2025a). The Wona land system was represented by vegetation type VfAl within the survey area, which has a total extent of 6,809.26 (7.57%) within the DE.

Locally restricted vegetation types

Ten vegetation types (AaCpTw, AaEp, AaTe, AaTs, AcTe, AeTe, AmTe, EcAcCs, EIGwTe and EvAcCc) within the DE were identified by ecologia (2025a) as potentially restricted in a local context because each comprises less than 5% of the DE. Although these vegetation types comprise a relatively small proportion of the DE, this may be a function of the survey area boundary and the linear nature of some of these vegetation types. All locally restricted vegetation types within the DE are represented by an area greater than 50 ha and are unlikely to be of significance, unless considered significant for other reasons already discussed. Further, ecologia (2025a) does not consider any of these locally restricted vegetation types as significant. The condition of these vegetation types range from 'Poor' to 'Excellent' and are described in Table 7-4.



7.4.5.4 Summary of Conservation significant vegetation

The conservation significance of vegetation within the DE was assessed based on the vegetation (Section 7.4.1 to Section 7.4.5) and flora (Section 7.4.6 to Section 7.4.9) described in the existing environment. The criteria relevant to this assessment are present in Table 7-8.

Table 7-8: Criteria for the Assessment of Conservation Significance of Vegetation

Significance scale	Significance criteria
Nationally significant vegetation	Presence of EPBC Act listed Threatened flora species or communities.
	Presence of Ramsar Wetlands
State significant vegetation	Presence of State-listed Threatened flora species or communities.
	Land within or in areas recommended by DBCA for inclusion in the State-managed conservation estate
	Pre-European vegetation extent below 30%
Regionally significant vegetation	Presence of DBCA listed Priority flora species or ecological communities
	Presence of ESAs/areas relevant to a conservation scheme;
	Important for maintaining ecological processes (e.g., groundwater dependent vegetation and riparian vegetation); and
	Presence of significant undescribed taxa. Note that although vegetation may contain undescribed taxa, these species may still be common and are potentially not significant.
Locally significant vegetation	Presence of small, isolated communities of limited extent and/or distribution (i.e., < 5% of the total DE).

No DBCA mapped TECs (or vegetation analogous to any TECs), or populations of Threatened flora (EPBC Act or BC Act listed) were recorded within the DE. Therefore, no vegetation types of National or State significance occur within the DE. Vegetation type VfAI is associated with the presence of a PEC and a potential PEC (as described in Section 7.4.5.1) and is therefore considered to be of Regional significance. This vegetation type also has a potential role as refuge.

Eleven vegetation types within the DE (AaEp, AcTe, AeTe, EcAcCs, EIAbTI, EIGwTe, EvAcCc, Mos (AiCpTe1, AiCpTe2, AiSgTb) and VfAI) contain records of Priority flora species. While these records are distributed throughout the DE, certain discrete areas of vegetation types (VfAI, EIAbTI, EIGwTe) have a higher concentration of records. Additionally, there is one Priority flora species (*Acacia cyperophylla* var. *omearana*) restricted to a single vegetation type (AcTe). The remaining vegetation types contain only a low number of records (one to three) or species that occur across multiple vegetation types. Therefore, only vegetation types VfAI, EIAbTI, EIGwTe and AcTe are considered regionally significant (refer to Table 7-10, Figure 7-8).

Two vegetation types (AmTe and EcAcCs) contain flora species with potential range extensions (refer to Section 7.4.8). Among these, a single individual of *Stenopetalum velutinum* was recorded within AmTe, while 13 individuals belonging to three species, were recorded within EcAcCs. Due to the very low number of individuals within AmTe, this vegetation type is not considered significant. EcAcCs contains a single individual of two species and 10 individuals of *Brachyscome rudallensis*. This species was previously recorded only twice in Atlas of Living Australia (ALA) (2025), suggesting that its limited distribution is likely due to a lack of records rather than a true range extension. As a result, this vegetation type is also not considered significant.



Eight vegetation types (AaCpTw, AaTs, EcAcCs, EIAbTI, Mos (AiCpTe1, AiCpTe2, AiSgTb) and VfAI) contain records of three atypical species that might represent a new species (refer to Section 7.4.8). In total, ecologia (2025a) recorded 14 individuals, with most vegetation types (AaCpTw, AaTs, EcAcCs) containing only a single individual. Five vegetation types (EIAbTI, Mos (AiCpTe1, AiCpTe2, AiSgTb) and VfAI) contain records of two to five individuals of these atypical species. However, these vegetation types cover a large proportion of the DE, and the atypical species are not concentrated in any specific area. Therefore, due to the low number of records and their scattered distribution, these vegetation types are not considered significant.

Vegetation type EcAcCs (supporting *Melaleuca argentea* and *Eucalyptus camaldulensis*) and parts of EvAcCc that supported *Eucalyptus camaldulensis* were considered to be GDV. The remaining parts of vegetation type EvAcCc (supporting only *Eucalyptus victrix*) is a potential GDV. Both vegetation units are considered regionally significant due to the presence of GDV.

Overall, of the 14 potentially significant vegetation types within the DE, six are considered to be of significance. Table 7-9 summarises the conservation significant vegetation within the DE.

Table 7-9: Summary of Conservation Significant Vegetation within the Development Envelope

Scale	Significant aspects found within DE	Vegetation Types within DE
Regional Significance	Presence of PEC or potential PEC	VfAI
	Presence of Priority flora	AcTe, VfAI, EIAbTI, EIGwTe
	Role in maintaining an important ecological process (i.e., Riparian and/or groundwater dependent vegetation and fauna and flora refuge)	EvAcCc, EcAcCs, VfAI

7.4.6 Flora

A total of 517 flora species, from 190 genera and 60 families were recorded within the DE during the field assessments. The dominant families recorded were Fabaceae (96 taxa), Poaceae (77 taxa), Malvaceae (56 taxa). The dominant genera recorded were *Acacia* (35 taxa), *Sida* (15 taxa) and *Ptilotus* (15 taxa). The inventory of vascular flora recorded is presented in Appendix A (ecologia, 2025a).

7.4.7 Conservation Significant Flora

7.4.7.1 Threatened Flora

The desktop survey identified one Threatened flora species within 50 km of the DE. There are three records of *Quoya zonalis* (Pilbara Foxglove), listed as Endangered under the BC Act and EPBC Act, 9 km north of the DE (TPFL, 2025; WAHerb, 2025). The survey undertaken by ecologia (2025a) recorded 23 individuals within the survey area, however, these were located 4.5 km north, outside of the DE.

7.4.7.2 Priority Flora

The desktop survey identified 59 Priority flora species identified by DBCA and/or Fortescue's database that have previously been recorded within 50 km of the DE, of which ten species occurred within the DE. The surveys undertaken by ecologia (2025a) recorded 13 Priority



flora species (as shown on Figure 7-5) including five species which were previously recorded within the DE, as described below and summarised in Table 7-10.

***Acacia cyperophylla* var. *omearana* (P1)**

Acacia cyperophylla var. *omearana* is a perennial tree growing between 4-10 m tall, usually occurring in stony and gritty alluvium along drainage lines, shown in Plate 7-5. The species has yellow flowers and 'minni-ritchi' bark, and flowers in March and April (WA Herbarium, 1997). The species has a current known distribution from north of Mable Bar southeast to Newman where it is restricted to stony alluvium along drainage lines (ecologia, 2025a). This species is listed as Priority 1 by DBCA.

Previous Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records, identified 2,070 individuals from 18 occurrences previously recorded within 50 km of the DE. Of those 18 occurrences, none were previously recorded within the DE.

During the field survey, six occurrences, totalling 1,173 individuals were recorded within the Survey Area. Of those, 1,143 individuals (4 occurrences) were recorded in the DE, restricted to the north of the Survey Area in stony creeks, all within vegetation type AcTe (ecologia, 2025a).

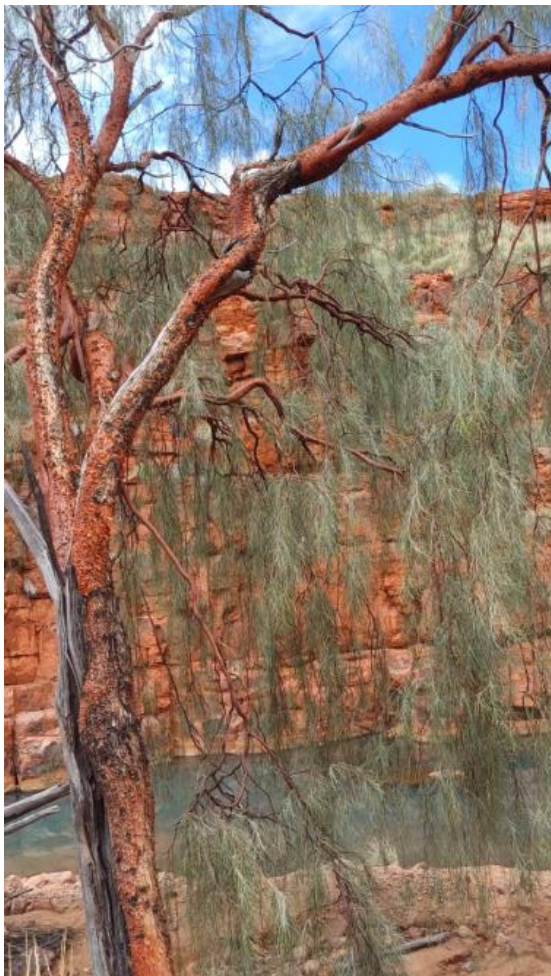


Plate 7-5 *Acacia cyperophylla* var. *omearana* (P1) (ecologia, 2025a)



***Stemodia* sp. Battle Hill (A.L.Payne 1006) (P1)**

Stemodia sp. Battle Hill (A.L. Payne 1006) is a low shrub which grows in cracking clay and floodplains (WA Herbarium, 1998-). The species is only known from two general locations, southwest of Nullagine and east of Fortescue Marsh, where it has been found growing on cracking clay soils (ecologia, 2025a).

Existing Fortescue records and DBCA data (TPFL, 2025; WA Herb, 2025) estimated three individuals from three occurrences recorded within 50 km of the DE. All occurrences were previously recorded within DE in 2008.

During the field surveys, 370 individuals (55 occurrences) were recorded within the Survey Area, of which 368 individuals (54 occurrences) were recorded within the DE, all from vegetation type VfAI (ecologia, 2025a).



Plate 7-6 *Stemodia* sp. Battle Hill (A.L.Payne 1006) (P1) (SLR, 2024)



***Paspalidium retiglume* (P2)**

Paspalidium retiglume is a tufted annual grass-like herb which grows between 0.1-0.5 m high (WA Herbarium, 1998-). The species flowers between March and September and grows in clay soils. This species is listed as Priority 2 by DBCA.

No previous records of this species were found within existing Fortescue records and DBCA data (TPFL, 2025; WA Herb, 2025).

During field surveys, 260 individuals (9 occurrences) were recorded within the Survey Area, of which 259 individuals (8 occurrences) were found within the DE on clay soils, all located within vegetation type VfAl.



Plate 7-7 *Paspalidium retiglume* (P2)



***Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3)**

Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479) is an annual herb, growing to 0.1 m tall with blue flowers (Falster *et al.*, 2021). The species is endemic to WA and commonly found in the region from Karratha southeast to Newman. The species is widespread in the central Pilbara, it grows primarily on inundated clays on gibber plains (ecologia, 2025a). This species is listed as Priority 3 by DBCA.

The existing Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records identify one individual within 50 km buffer of the DE, which was previously recorded within the DE in 2022 (WA Herbarium, 2025).

During the field survey, 750 individuals (25 occurrences) were recorded within the Survey Area, all of which occur within the DE in clay soils within vegetation types VfAI and EIAbTI (ecologia, 2025a).

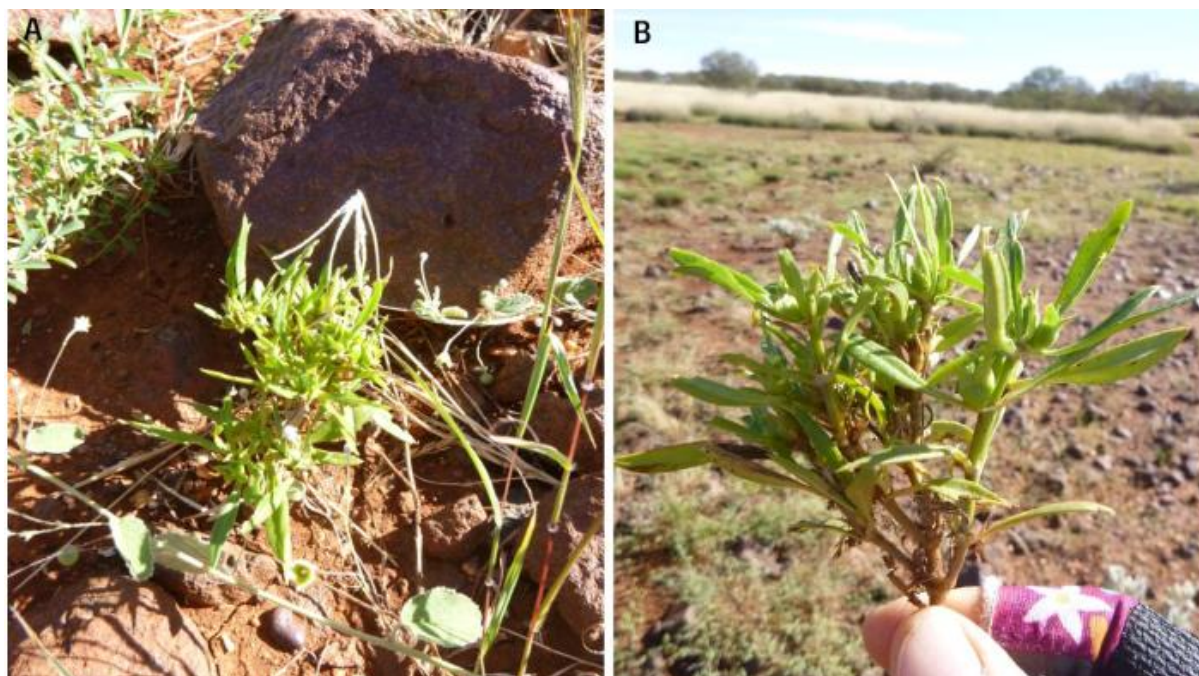


Plate 7-8 *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3) (SLR, 2024)



***Euphorbia inappendiculata* var. *inappendiculata* (P3)**

Euphorbia inappendiculata var. *inappendiculata* is an annual, prostrate herb, endemic to WA. The species grows to 0.1 m tall with dark green leaves above and light green below and light brownish green coloured stems. Flowering occurs between July and August, and the species is typically found on flats or gentle plains, cracking clay patches and orange-brown sandy loam (ecologia, 2025a; WA Herbarium, 1998-, FVC, 2024). This species is listed as Priority 3 by DBCA.

Existing Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records estimate 53 individuals from four occurrences within 50 km of the DE. None of which were previously recorded within the DE.

During field surveys, a single individual was recorded within DE and the Survey Area, recorded in clay soils within vegetation type EIAbTI (ecologia, 2025a).

***Euphorbia inappendiculata* var. *queenslandica* (P3)**

Euphorbia inappendiculata var. *queenslandica* is an herb that flowers in the summer months and displays white-cream flowers (Falster *et al.*, 2021). The species occur across Australia and is typically associated with cracking clays (ecologia, 2025a). The species is listed as Priority 3 by DBCA.

Existing Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records estimates 40 individuals from 10 occurrences within 50 km the DE. None of those occurrences were previously recorded within the DE.

During field surveys, 1,977 individuals (90 occurrences) were recorded within the DE and Survey Area, on clay soils within vegetation type VfAI. It is locally abundant where it occurs (ecologia, 2025a).



Plate 7-9 *Euphorbia inappendiculata* var. *queenslandica* (P3)



***Euphorbia stevenii* (P3)**

Euphorbia stevenii is a perennial herb that grows between 0.1-0.5 m high in clay and sandy soils. *Euphorbia stevenii* extends from near Karratha southeast to near Newman in the Pilbara, with outlying records in the northern Kimberley (ecologia, 2025a). This species is listed as Priority 3 by DBCA.

No previous records of this species were found within existing Fortescue records and DBCA data (TPFL, 2025; WA Herb, 2025).

During field surveys, 80 individuals (two occurrences) were recorded within the DE and Survey Area, in clay soils within vegetation type VfAI.



Plate 7-10 *Euphorbia stevenii* (P3)



***Iotasperma sessilifolium* (P3)**

Iotasperma sessilifolium is an annual, flowering herb growing to 0.35 m tall. The species is widespread across Australia (ALA, 2025) with 85 occurrence records spanning WA, NT, Queensland, New South Wales, and South Australia, and primarily grows along the edges of waterholes and on cracking clays (ecologia, 2025a). This species is listed as Priority 3 by DBCA.

Existing Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records estimate four individuals from four occurrences recorded within 50 km of the DE. Three of those individuals (three occurrences) were previously recorded within the DE in 2008.

During field surveys, one individual, which was not previously recorded, was identified within the Survey Area. This individual occurs within the DE, in a minor drainage line within the mosaic vegetation (AiCpTe1, AiCpTe2, AiSgTb) (ecologia, 2025a).

***Ipomoea racemigera* (P3)**

Ipomoea racemigera extends from near Karratha in the northwest of its distribution to near Newman in the southeast. It is widespread in northern Australia, occurring in the southern and central Northern Territory, northern Queensland, and north-eastern South Australia (ecologia, 2025a). This species is listed as Priority 3 by DBCA.

Existing Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records estimate three individuals (three occurrences) recorded within 50 km of the DE. None of those occurrences were previously recorded within the DE.

During field surveys, 11 individuals (nine occurrences) were recorded within the Survey Area, of which nine individuals (seven occurrences) were recorded within the DE, in vegetation types AaEp, EvAcCc and EcAcCs.



Plate 7-11 *Ipomoea racemigera* (P3) (ecologia, 2025a)



***Neptunia longipila* (P3)**

Neptunia longipila is a recently described species that was split from *Neptunia dimorphantha*. It is a Pilbara endemic occurring from near Karratha in the northwest of its distribution to near Newman in the southeast (ecologia, 2025a). This species is listed as Priority 3 by DBCA.

No previous records of this species were found within existing Fortescue records and DBCA data (TPFL, 2025; WA Herb, 2025).

During field surveys, 189 individuals (nine occurrences) were recorded within the Survey Area. All of which occur within the DE on clay soils associated with vegetation type VfAI.



Plate 7-12 *Neptunia longipila* (P3) (ecologia, 2025a)



***Nicotiana umbratica* (P3)**

Nicotiana umbratica is a short-lived annual or perennial herb that can grow up to 0.7 m tall. Flowering occurs between April and June; the flowers are long, tubular, and white (WA Herbarium, 1998-). The species occurs in shallow soils and rocky outcrops (WA Herbarium, 1998). *Nicotiana umbratica* is listed as Priority 3 by DBCA.

Existing Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records estimate one individual previously recorded within 50 km of the DE. This individual is located outside of the DE.

During field surveys, 548 individuals (33 occurrences) were recorded within the Survey Area, of which 105 individuals (nine occurrences) were recorded in the DE, associated with vegetation types AeTe, AiCpTe1/AiCpTe2/AiSgTb Mos and EIAbTI.



Plate 7-13 *Nicotiana umbratica* (P3) (SLR, 2024)



***Swainsona thompsoniana* (P3)**

Swainsona thompsoniana is a prostrate, annual herb that grows up to 0.1 m tall. *Swainsona thompsoniana* occurs near Karratha in the north-west to near Newman in the southeast and is typically associated with heavy clay soils (Davis & Hurter, 2013). This species is listed as Priority 3 by DBCA.

Existing Fortescue and DBCA (TPFL, 2025; WA Herb, 2025) records estimate nine individuals (nine occurrences) recorded within 50 km the DE. Three individuals (three occurrences) were previously recorded within DE in 2022 and 2008 (WA Herb, 2025).

During the field surveys, 997 individuals (42 occurrences) were recorded within the Survey Area, of which 977 individuals (41 occurrences) occur within the DE on clay soils, primarily within vegetation type VfAI.



Plate 7-14 *Swainsona thompsoniana* (P3) (SLR, 2024)



***Ptilotus mollis* (P4)**

Ptilotus mollis (P4) is a compact perennial shrub with soft grey foliage up to 0.5 m high. The species has densely clustered white or pink flower spikes that flower in May or September. *Ptilotus mollis* is known to occur on stony hills and screes (WA Herbarium, 1998-). *Ptilotus mollis* is listed as Priority 4 by DBCA.

Existing Fortescue, DBCA data and McPhee Creek Iron Ore Project records (TPFL, 2025; WA Herb, 2025; Atlas, 2022) estimate 6,531 individuals (298 occurrences) recorded within 50 km the DE. Of those occurrences, 521 individuals (22 occurrences) were previously recorded within DE in 2004 and 2008.

During the field surveys, 1,174 individuals (43 occurrences) were recorded within the Survey Area. All of which were found within the DE close to several existing known locations within the vegetation types EIAbTI and EIGwTe.



Plate 7-15 *Ptilotus mollis* (P4)



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Table 7-10: Conservation Significant Flora within the Development Envelope

DBCAs listing	Scientific name	Location of individuals within DE	Individuals (occurrences) recorded within the DE*	Total Individuals (occurrences) recorded within the Survey Area*	Total individuals (occurrences) recorded within 50 km buffer**
Priority 1	<i>Acacia cyperophylla</i> var. <i>omearana</i>	AcTe – 1,143 ind.	1,143 individuals (4)	1,173 individuals (6)	3,243 individuals (24)
	<i>Stemodia</i> sp. Battle Hill (A.L. Payne 1006)	VfAI – 368 ind.	368 individuals (54)	370 ind. (59)	373 individuals (62)
Priority 2	<i>Paspalidium retiglume</i>	VfAI – 259 ind.	259 individuals (8)	260 individuals (9)	260 individuals (9)
Priority 3	<i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479)	EIAbT- 110 ind. VfAI – 640 ind.	750 individuals (25)	750 individuals (25)	751 individuals (26)
	<i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>	EIAbTI – 1 ind.	1 individual (1)	1 individual (1)	54 individuals (5)
	<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>	VfAI – 1,977 ind.	1,977 individuals (90)	1,977 individuals (90)	2,017 individuals (100)
	<i>Euphorbia stevenii</i>	VfAI – 80 ind.	80 individuals (2)	80 individuals (2)	80 individuals (2)
	<i>Iotasperma sessilifolium</i>	Mos -1 ind.	1 individual (1)	1 individual (1)	5 individuals (5)
	<i>Ipomoea racemigera</i>	AaEp – 2 ind. EcAcCs – 1 ind. EvAcCc - 6 ind.	9 individuals (7)	11 individuals (9)	14 individuals 12)
	<i>Neptunia longipila</i>	VfAI – 189 ind.	189 individuals (9)	189 individuals (9)	189 individuals (9)
	<i>Nicotiana umbratica</i>	AaTe – 5 ind. EIAbTI – 20 ind. Mos – 80 ind.	105 individuals (9)	548 individuals (33)	549 individuals (34)
	<i>Swainsona thompsoniana</i>	VfAI – 976 ind.	977 individuals (41)	997 individuals (42)	1,006 individuals (51)



DBC listing	Scientific name	Location of individuals within DE	Individuals (occurrences) recorded within the DE*	Total Individuals (occurrences) recorded within the Survey Area*	Total individuals (occurrences) recorded within 50 km buffer**
		Cleared – 1 ind.			
Priority 4	<i>Ptilotus mollis</i>	EIAbTI – 166 ind. EIGwTe – 1,008 ind.	1174 individuals (43)	1174 individuals (43)	7,705 individuals (311)***

*Total number of individuals estimated based on ecologia (2025a)

**Includes records from spatial data provided by DBCA (WAHERB and TPFL), and records from the Fortescue Database (including records from ecologia (2025a) WAHerb records often provide the count (frequency) in descriptors such as common, occasional and scattered without providing an actual number of plants. For the purposes of this assessment these records have been counted as one individual for no comment, five individuals for 'scattered' or 'occasional' or 'uncommon', and 50 individuals for common/frequent/abundant.

***Including a total of 5,919 individuals (238 occurrences) recorded in McPhee Creek Iron Ore Project (Atlas, 2022), 30 km from the DE.



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Legend

Development Envelope	Priority 1 (DBCA)
GOV Towns	<i>Acacia cyperophylla</i> var. <i>omearana</i>
Major Roads	<i>Corchorus</i> sp. <i>Yarrie</i> (<i>J. Bull & D. Roberts CAL 01.05</i>)
Fortescue Rail	<i>Stemodia</i> sp. <i>Battle Hill</i> (<i>A.L. Payne 1006</i>)
Roy Hill Rail	Priority 2 (DBCA)
Indicative Disturbance Footprint	<i>Indigofera ixocarpa</i>
Approved Disturbance (Nullagine Pilot Wind Farm)	<i>Neptunia longipila</i>
	<i>Paspalidium retiglume</i>

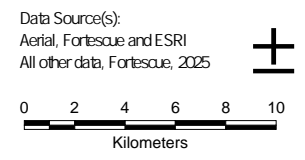


Figure 7-5-1
 Conservation Significant Flora
 within the Development Envelope

Requested By: R. Dorji Date: 2/3/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 2
 Approved By: Confidentiality: 0
 Scale: 1:300,000

Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 45190P002_MP_EN_0093_PartIV
 Document Name: 45190P002_MP_EN_0093_011a_r2_Cons_Sig_Flora

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Legend

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| Development Envelope | Priority 3 (DBCA) |
| GOV Towns | <i>Dolichocarpa</i> sp. Hammersley Station (A.A. Mitchell PRP 1479) |
| Major Roads | <i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i> |
| Fortescue Rail | <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> |
| Roy Hill Rail | <i>Euphorbia stevenii</i> |
| Indicative Disturbance Footprint | <i>Iotasperma sessilifolium</i> |
| Approved Disturbance (Nullagine Pilot Wind Farm) | <i>Ipomoea racemigera</i> |

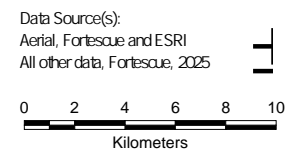


Figure 7-5-2
 Conservation Significant Flora
 within the Development Envelope

Requested By: R. Dorji Date: 2/2/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 2
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 45190P002_MP_EN_0093_PartIV
 Document Name: 45190P002_MP_EN_0093_011b_r2_Cons_Sig_Flora
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- Legend**
- | | |
|--|--|
| Development Envelope | Priority 3 (DBCA) |
| GOV Towns | <i>Nicotiana umbratica</i> |
| Major Roads | <i>Rhagodia sp.</i> |
| Fortescue Rail | <i>Hammersley (M. Trudgen 17794)</i> |
| Roy Hill Rail | <i>Rostellularia adscendens var. latifolia</i> |
| Indicative Disturbance Footprint | <i>Swainsona thompsoniana</i> |
| Approved Disturbance (Nullagine Pilot Wind Farm) | Priority 4 (DBCA) |
| | <i>Bulbostylis burbridgeae</i> |
| | <i>Ptilotus mollis</i> |

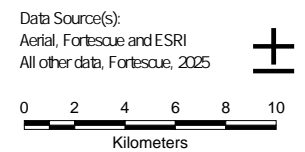


Figure 7-5-3
 Conservation Significant Flora
 within the Development Envelope

Requested By: R. Dorji Date: 2/2/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 2
 Approved By: Confidentiality: 0
 Scale: 1:300,000

Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 45190P002_MP_EN_0093_PartIV
 Document Name: 45190P002_MP_EN_0093_011c_r2_Cons_Sig_Flora

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7.4.8 Other Significant Flora

Range Extensions

Ten species that occur more than 100 km from the nearest known record were identified by ecologia (2025a) within the Survey Area. Of those ten, four species were recorded at the edge of their known range in WA and ecologia (2025a) defined them as representing a significant extension of the species' distributions. The species and individuals recorded by ecologia within the DE (2025a) considered to be significant range extensions include:

- *Brachyscome rudallensis*: 10 individuals,
- *Calandrinia balonensis* (Parakeelya): 1 individual,
- *Crotalaria cunninghamii* subsp. *cunninghamii* (Green Bird Flower): 1 individual, and
- *Stenopetalum velutinum* (Downy Thread-Petal): 1 individual.

Atypical species

Three taxa recorded within the DE are believed to be atypical. These species and individuals recorded within the DE are:

- *Olearia* aff. *fluvialis*: 1 individual,
- *Solanum* aff. *esuriale*: 1 individual, and
- *Solanum* aff. *horridum*: 12 individuals.

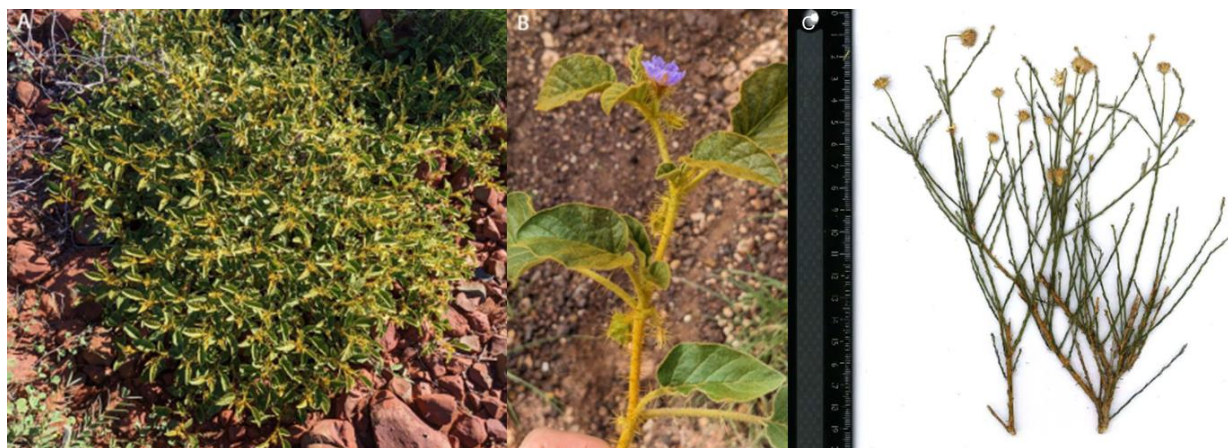


Plate 7-16 Atypical species recorded within DE (SLR, 2024)

A and B: *Solanum* aff. *horridum*; C: *Olearia* aff. *fluvialis*

7.4.9 Introduced Flora

Twenty-five introduced flora species were recorded within the DE with **Cenchrus ciliaris* (Buffel Grass) and **Cenchrus setiger* (Birdwood Grass) being the most prominent. **Calotropis procera* was recorded within the DE from 17 locations (approximately 69 individuals), mostly



associated with the disturbed areas of the BC Iron Nullagine mine (ecologia, 2025a) (Table 7-11; Figure 7-6). **Calotropis procera* is a Declared Pest for the Pilbara region under the BAM Act however it is categorised as exempt, requiring no permit of conditions for keeping. It has not been assigned a control category.

The most significant weed infestations occurred in major drainage channels where **Cenchrus ciliaris* and **C. setiger* occur. There were also notable infestations of **Vachellia farnesiana* usually associated with the Wona land system (ecologia, 2025a).

Table 7-11: Introduced Flora within Development Envelope

Scientific name	Common name	BAM Act	Individuals/ Occurrences Individuals within DE	Ecological Impact*
<i>*Aerva javanica</i>	Kapok Bush	Permitted – s11	43 individuals (30)	High
<i>*Alternanthera pungens</i>	Khaki Weed	Permitted – s11	1 individual (1)	Low
<i>*Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	Mexican poppy	Permitted – s11	2729 individuals (18)	Unknown
<i>*Bidens bipinnata</i>	Bipinnate Begger's tick	Permitted – s11	157 individuals (9)	Unknown
<i>*Calotropis procera</i>	Calotrope	Declared Pest - s22(2)	69 individuals (17)	Not listed
<i>*Cenchrus ciliaris</i>	Buffel Grass	Permitted – s11	4075 individuals (77)	High
<i>*Cenchrus setiger</i>	Birdwood Grass	Permitted – s11	4037 individuals (70)	High
<i>*Chenopodium murale</i>	Nettle-leaf Goosefoot	Permitted – s11	1 individual (1)	Low
<i>*Citrullus amarus</i>	Bitter melon	Not listed	1 individual (1)	Not listed
<i>*Citrullus colocynthis</i>	Colocynth	Permitted – s11	4 individuals (4)	Unknow
<i>*Cucumis myriocarpus</i> subsp. <i>myriocarpus</i>	Prickly paddy melon	Permitted – s11	3 individuals (3)	Low
<i>*Cynodon dactylon</i>	Couch	Permitted – s11	5 individuals (5)	High
<i>*Echinochloa colona</i>	Awnless Barnyard Grass	Permitted – s11	38 individuals (10)	High
<i>*Euphorbia hirta</i>	Asthma Plant	Not listed	3 individuals (3)	Low
<i>*Flaveria trinervia</i>	Speedy Weed	Not listed	18 individuals (4)	Not listed
<i>*Malvastrum americanum</i>	Spiked Malvastrum	Permitted – s11	175 individuals (51)	High
<i>*Phoenix dactylifera</i>	Date Palm	Permitted – s11	1 individual (1)	High
<i>*Physalis angulata</i>	Wild Gooseberry	Permitted – s11	11 individuals (3)	Unknown
<i>*Senna occidentalis</i>	Coffee senna	Permitted – s11	40 individuals (1)	Not listed
<i>*Setaria verticillata</i>	Whorled Pigeon Grass	Permitted – s11	41 individual (3)	High
<i>*Solanum nigrum</i>	Black Berry Nightshade	Permitted – s11	13 individuals (3)	Low
<i>*Sonchus oleraceus</i>	Common Sowthistle	Permitted – s11	7 individuals (5)	Low
<i>*Trianthema portulacastrum</i>	Giant Pigweed	Permitted – s11	2 individuals (2)	Not listed



Scientific name	Common name	BAM Act	Individuals/ Occurrences Individuals within DE	Ecological Impact*
* <i>Tribulus terrestris</i>	Caltrop	Permitted – s11	113 individuals (13)	Unknown
* <i>Vachellia farnesiana</i>	Mimosa Bush	Permitted – s11	386 individuals (96)	High

*Rating based on the WA Weed Prioritisation Process (ecologia, 2025a)



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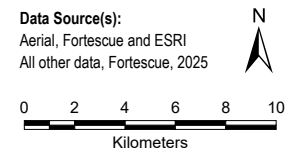
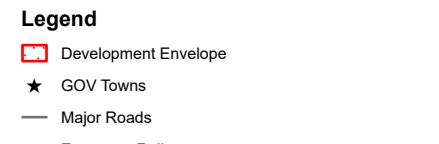
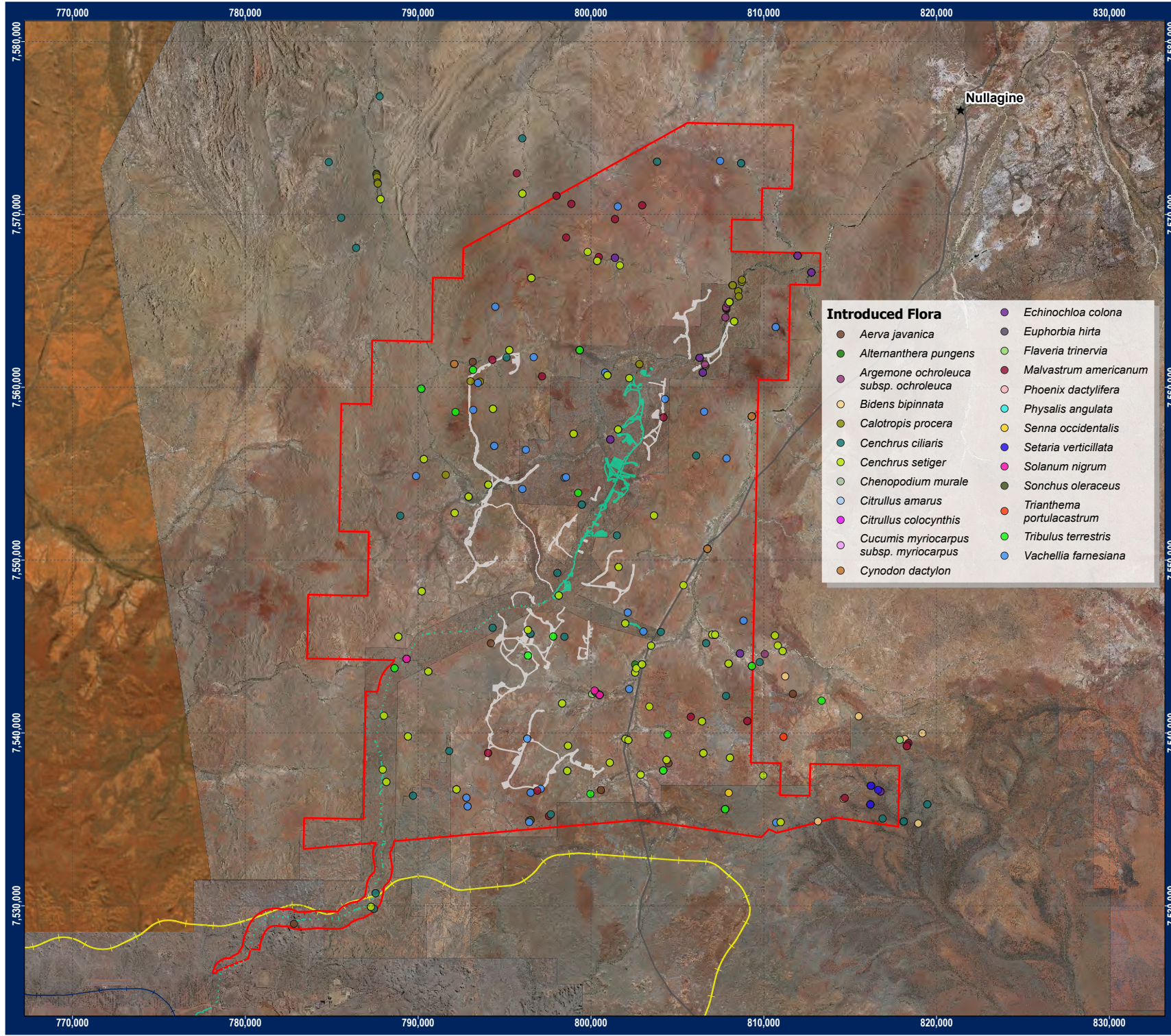


Figure 7-6
Introduced Flora
within the Development Envelope

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 1
Approved By:	Confidentiality: 0
Scale: 1:300,000	
Coordinate System: GDA 1994 MGA Zone 50	
Project Name: 4519OP002_MP_EN_0093_PartIV	
Document Name: 4519OP002_MP_EN_0093_012_r1_Introduced_Flora	

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7.4.10 Fire History

The Pilbara region is susceptible to increased bushfires during the dry season, from July to January. Most fires in the region are due to natural events, such as lightning strikes. However, a significant proportion of events have unknown or accidental causes. Comparatively, prescribed burns represent the smallest cause (Bryant, 2008).

The vegetation of the Pilbara is, in general, well adapted to fire, with many species relying on it as part of their life cycle (Carwardine *et al.*, 2014). Most affected species have mechanisms that facilitate fire recovery, such as resistant seed banks and resprouting, but fire frequency and severity will determine the impact on recovery and conservation outcomes (Gallagher, *et al.*, 2021). For example, short intervals between fires can disrupt the vegetation dynamics by impacting juvenile resprouting plants before they reach size sufficient to survive subsequent fires (Gallagher *et al.*, 2021).

According to the DBCA Fire History (DBCA, 2024c), over 75% of the DE has been impacted by fire between 2006 and 2024, equating to over 68,700 ha. The largest recorded recent fires within the DE occurred in 2019, impacting 25,900.49 ha (28.79% of the DE). Prior to 2019, the most expansive fire events occurred in 2015 and 2016, impacting 14.66% and 10.32% of land within the DE, respectively. From 2020 to 2024, smaller, scattered fires impacted 7,888.47 ha (8.77%) of the DE (Plate 7-17; Figure 7-7) (ecologia, 2025a).

The fire history of the DE does not appear to have affected the vegetation condition, as most of the area remains in 'Excellent' condition.

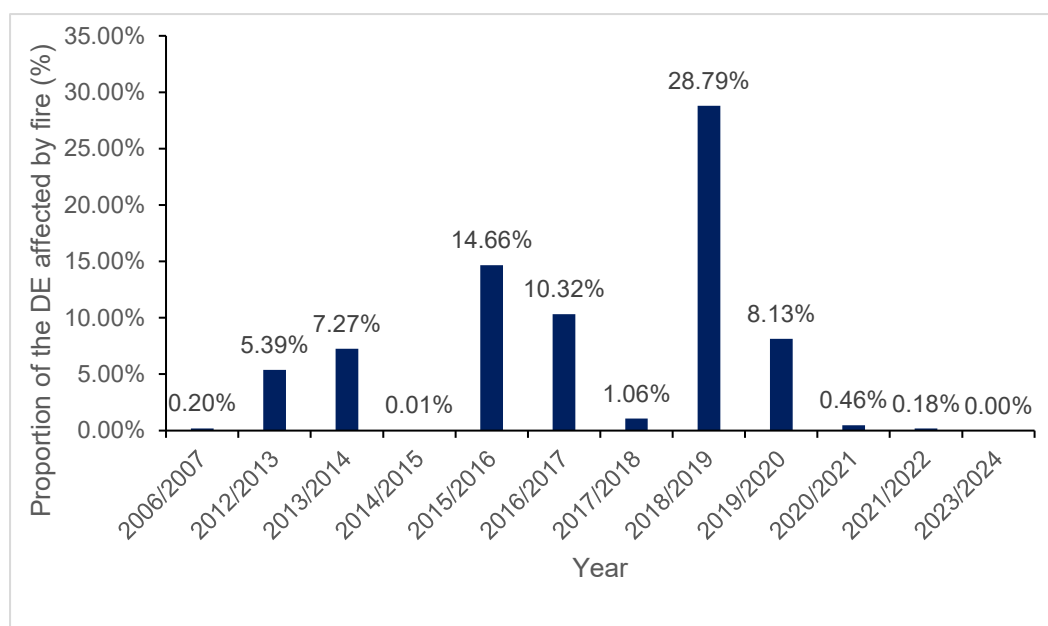


Plate 7-17 Fire history within the DE (2006-2024)



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Legend

- Development Envelope
- ★ GOV Towns
- Major Roads
- Fortescue Rail
- Roy Hill Rail
- ▒ Indicative Disturbance Footprint
- ▒ Approved Disturbance (Nullagine Pilot Wind Farm)

Fire History

- Unburnt
- 2005 - 2009
- 2010 - 2014
- 2015 - 2019
- 2020 - 2024

Data Source(s):
 Aerial, Fortescue and ESRI
 All other data, Fortescue, 2025

N

0 2 4 6 8 10
Kilometers

Figure 7-7
Fire History
 within the Development Envelope

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 1
Approved By:	Confidentiality: 0
Scale: 1:300,000	
Coordinate System: GDA 1994 MGA Zone 50	
Project Name: 4519OP002_MP_EN_0093_PartIV	
Document Name: 4519OP002_MP_EN_0093_013_r1_Fire_History	

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7.5 Potential Impacts

The Proposal activities that may impact flora and vegetation include:

- Clearing of flora and vegetation in the IDF to accommodate Proposal infrastructure, including access roads, turbine pads, and substations,
- Temporary clearing for the laydown of wind turbines and other infrastructure,
- Disruption of surface water flow, and
- Movement of construction vehicles and machinery around the site.

The potential impacts on flora and vegetation arising from these activities include:

- Direct Impacts:
 - Clearing of up to 910.26 ha of native vegetation. Details on the extent of clearing by vegetation association are provided in Table 7-14. Of this total, 466.86 ha is temporary clearing, 480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) will be rehabilitated once construction is complete,
 - Clearing of up to 7.34 ha of riparian vegetation, which includes 3.13 ha of groundwater dependent vegetation and 4.20 ha of potentially groundwater dependent vegetation,
 - Clearing of up to 76.65 ha of the 'Four plant assemblages of the Wona Land System' PEC, sub-community Cracking clays of the Chichester and Mungaroo Range (P1),
 - Clearing of up to 9.61 ha of vegetation which is potentially the 'Four plant assemblages of the Wona Land System' PEC sub-community Cracking clays of the Chichester and Mungaroo Range (P1),
 - Clearing of up to 82.47 ha of significant habitat for Priority flora species,
 - Clearing of 160 individuals of Priority flora species, including:
 - *Neptunia longipila* (P3): 10 individuals,
 - *Paspalidium retiglume* (P2): one individual,
 - *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3): 23 individuals,
 - *Euphorbia inappendiculata* var. *queenslandica* (P3): 72 individuals,
 - *Iotasperma sessilifolium* (P3): one individual,
 - *Swainsona thompsoniana* (P3): 18 individuals, and



- *Ptilotus mollis* (P4): 35 individuals.
- Indirect Impacts:
 - Fragmentation of conservation significant flora species habitat,
 - Edge effects⁵ on seven conservation significant flora species, totalling 526 individuals from three Priority flora species,
 - Edge effects on 'Four plant assemblages of the Wona Land System' PEC, sub-community Cracking clays of the Chichester and Mungaroo Range (P1) and vegetation which is potentially the 'Four plant assemblages of the Wona Land System' PEC sub-community Cracking clays of the Chichester and Mungaroo Range (P1),
 - Reduced health of riparian vegetation or groundwater dependent vegetation through changes to hydrology and hydrogeology,
 - Introduction or spread of weed species,
 - Increased dust generation and deposition during construction, and
 - Increased risk of bushfire incidents as a result of hot works during construction, or during operations.
- Cumulative impacts:
 - Combined impacts to the remaining extent of pre-European vegetation associations associated with the Proposal and other developments in the surrounding area,
 - Combined clearing of Priority flora species individuals reducing the extent of occurrence of the species or changing its conservation status at a regional or species level,
 - Combined impacts to groundwater dependent vegetation and potentially groundwater dependent vegetation resulting from direct clearing of vegetation associated with the Proposal and other developments in the surrounding area, and
 - Combined impacts to 'Four plant assemblages of the Wona Land System' PEC (P1, P3) resulting from direct clearing of vegetation associated with the Proposal and other developments in the surrounding area.

7.6 Mitigation

During the planning and design process for the Proposal, the mitigation hierarchy (avoid, minimise and rehabilitate) was applied to assess, avoid and minimise potential impacts to flora

⁵ Edge effects can occur at the boundary between clearing and the remaining vegetation, including effects associated with increased sunlight and wind; changes in plant and animal communities supported; increased risk of invasive species; or changes in soil composition and water runoff patterns.



and vegetation as far as practicable. Following completion of the Flora and Vegetation survey (SLR, 2024; ecologia, 2025a), the data was reviewed against the project design to avoid/minimise clearing of significant flora and vegetation. The Proposal's IDF has been designed to avoid areas that may support significant biodiversity values or heritage values. Areas that have been avoided, where practicable, include:

- Avoidance of major drainage/creek lines except where crossing locations are required. Consultation with Traditional Owners was undertaken to identify creek crossings to reduce environmental and heritage impacts,
- Avoidance of Threatened flora species: Pilbara Foxglove (*Quoya zonalis*),
- Avoidance of Sheet-flow dependent mulga vegetation, and
- Avoidance of restricted / limited vegetation types as far as practicable.
- Following an iterative design and assessment process, Fortescue have implemented the mitigation hierarchy, and the Proposal has been substantially reduced to avoid impacts wherever possible. This has included significantly reducing the number of turbines from 200 to 100 and implementation of large areas of exclusion zones around important areas of vegetation and habitat throughout the DE. As such, the IDF for the Proposal is less than half that of the originally proposed design.

The mitigation measures in Table 7-12 will be implemented to avoid or minimise impacts on flora and vegetation. An Environmental Management Plan (EMP) has been prepared to outline how the environmental impacts of the Proposal will be monitored, reported and managed for Flora and Vegetation (Appendix B).

Table 7-12: Avoidance, Management and Mitigation of Impacts to Flora and Vegetation

Hierarchy	Management actions
Avoidance	The design has avoided known locations of and Sheet-flow dependent mulga vegetation and Threatened flora species, Pilbara Foxglove (<i>Quoya zonalis</i>), through the design refinement of the DE.
	The Proposal has been substantially reduced to avoid impacts wherever possible. This has included significantly reducing the number of turbines from 200 to 100 and implementation of large areas of exclusion zones around important areas of vegetation and habitat throughout the DE. As such, the IDF for the Proposal is less than half that of the originally proposed design which substantially reduces the proposed vegetation clearing from the original Proposal design from 1,911.97 ha to 910.26 ha (including both temporary and permanent clearing).
	Where significant flora or vegetation occurs close to the IDF 'no-go' zones will be demarcated prior to construction activities to protect the conservation significant flora species and vegetation from impacts such as accidental clearing or disturbance.
	Areas to be cleared will be demarcated on the ground (either physically or using GPS enabled methods). Ground disturbance will be undertaken in line with Fortescue's 'Ground Disturbance and Topsoil Management Procedure' (Reference: IO-PR-EN-0010) provided in Appendix C.
Minimisation	All clearing areas will be checked and confirmed post-clearing through inspection of aerial imagery of clearing areas and comparison to the IDF. Site inspection will be undertaken prior to and following clearing to confirm no-go areas are



Hierarchy	Management actions
	<p>appropriately demarcated. Disturbance will be managed using Fortescue's Land Use Certificate system.</p> <hr/> <p>Comprehensive weed hygiene management through implementation of weed management measures as detailed in the EMP (Appendix B).</p> <hr/> <p>Groundwater abstraction for construction and operational water requirements is approved by and will be managed under GWL171278(7).</p> <hr/> <p>Dust deposition will be managed through standard construction measures (e.g., water application and exposed surface stabilisation) to minimise dust generation and avoid impacts on vegetation. The following standard dust mitigation measures are outlined in the EMP (Appendix B) and will be implemented throughout construction phase:</p> <ul style="list-style-type: none"> • Use of dust suppression to manage dust generation from construction activities, access roads and cleared areas, • Use of water sprays to manage dust generation from material transport and stockpiling, • Limit the number and height of stockpiles, • Vehicles confined to designated routes with speed limits strictly enforced, and • Adherence to Fortescue's Dust Deposition Monitoring Procedure (Reference: 45-PR-EN-0032). <hr/> <p>Implementation of fire risk management measures are outlined in the EMP (Appendix B) will be undertaken, including:</p> <ul style="list-style-type: none"> • Clearing activities would not be undertaken when fire danger ratings are extreme or above, • Carefully manage and monitor hot works through implementation of hot works permit system, • Ensuring appropriate disposal of potential fire-starting waste, e.g., cigarette butts, to minimise the risk of bushfires as a result of the Proposal, • Firefighting equipment will be located around the site and in vehicles. Fire response procedures and personnel training, including site inductions on fire prevention and management, will also be provided, and • Maintenance of cleared areas around turbine locations.
<p>Rehabilitation</p>	<p>480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) will be progressively rehabilitated once construction is complete to reduce impacts to flora and vegetation over time, including potential fragmentation (as detailed in Table 7-13). This will be undertaken in accordance with Fortescue's standard procedures including Rehabilitation and Revegetation Monitoring Procedure (Reference: 45-GU-EN-0009) provided in Appendix D.</p>



The proposed areas that will be progressively rehabilitated are detailed in Table 7-13.

Table 7-13: Rehabilitated Areas within the Indicative Disturbance Footprint

Vegetation type	IDF (ha)	Rehabilitation (ha)	Permanent Footprint (ha)	DE (ha)	Proportion of residual impact (%)
AaTe	7.69	0.95	6.74	589.26	1.14%
EIAbTI	101.54	54.72	46.82	15,183.93	0.31%
EIGwTe	44.54	22.10	22.44	4,033.24	0.56%
EvAcCc	7.34	4.41	2.93	4,260.76	0.07%
VfAI	86.26	38.32	47.94	6,809.26	0.7%
Mos (AiCpTe1, AiCpTe2 and AiSgTb)	662.89	346.37	316.52	56,633.25	0.56%
Cleared	33.81	13.94	19.87	844.56	2.35%
Total	944.07	480.81	463.26	88,518.15	



7.7 Assessment of Impacts

7.7.1 Direct Impacts

7.7.1.1 Clearing of Vegetation

The total clearing of native vegetation expected for the Proposal is 910.26 ha, including 466.86 ha of permanent clearing and 443.39 ha of temporary clearing. The remaining 480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) will be rehabilitated once construction is complete. Clearing of vegetation will:

- Reduce the remaining extent of pre-European vegetation associations,
- Reduce areas of specific vegetation types,
- Remove groundwater dependent and riparian vegetation,
- Remove 'Four plant assemblages of the Wona Land System' PEC sub-community Cracking clays of the Chichester and Mungaroo Range (P1) and potential PEC,
- Remove habitat for conservation significant flora,
- Reduce the local extent of vegetation considered to be significant at a Regional level,
- Remove vegetation with culturally significant values (discussed further in Chapter 9 (Social Surroundings)), and
- Remove vegetation that plays a role as a fauna refuge (discussed further in Chapter 8 (Fauna)).

Pre-European Vegetation

Table 7-14 details the expected area of each vegetation association mapped by Beard *et al.* (2013) that will be cleared from the Proposal. According to the 2018 Statewide Vegetation Statistics (DBCA, 2019), these vegetation associations retain more than 99% of their pre-European extent. It is unlikely that their extent has significantly declined (such that they would be below 30% and considered 'in danger') since the 2018 assessment.

The vegetation loss resulting from the Proposal represents a very small fraction of the remaining extent of each association. Consequently, the Proposal will not reduce any vegetation association below the 30% threshold at the State level, within the Pilbara IBRA bioregion, the Chichester and Fortescue subregions, or the Local Government Area (Shire of East Pilbara). Therefore, the clearing of pre-European vegetation associated with the Proposal is not expected to result in a significant impact.



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Table 7-14: Clearing Area Extent of Pre-European Vegetation Associations (DPIRD, 2019)

Vegetation association	Scale	Pre-European extent (ha)	Extent remaining (ha)	Extent within IDF (ha)	Proportion impact (%)	Extent remaining after the Proposal (ha)	Proportion of extent remaining after the Proposal (%)
173	Western Australia	1,753,104.09	1,748,260.83	944.07	0.05%	1,747,316.76	99.9%
	Pilbara IBRA Region	1,752,520.89	1,747,677.63	944.07	0.05%	1,746,733.56	99.9%
	Chichester IBRA Sub-Region	1,744,029.51	1,739,189.58	944.07	0.05%	1,738,245.51	99.9%
	Fortescue IBRA Sub-Region	4,310.96	4,310.96	0.00	0.00%	4,310.96	100.00%
	Shire of East Pilbara	1,085,704.89	1,081,937.46	944.07	0.09%	1,080,993.39	99.9%



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Vegetation Types

The Proposal will clear a total of 910.26 ha of native vegetation, across eight vegetation types. The proposed clearing of native vegetation (910.26 ha) represents 1.02% of the total native vegetation mapped within the DE (89,129.30 ha). The majority of the native vegetation to be cleared (62.94% of the IDF) is within the mosaic vegetation comprising AiCpTe1, AiCpTe2, and AiSgTb.

The Proposal's most significant impact within the DE is to vegetation type AaTe affecting 1.31% of the mapped extent in the DE, followed by the mosaic vegetation (AiCpTe1/AiCpTe2/AiSgTb), VfAI and ElGwTe, affecting 1.17%, 1.27% and 1.10% of the mapped vegetation respectively (Table 7-15). Following the implementation of the Proposal, all vegetation communities within the DE will retain over 97% of their extent mapped by ecologia (2025a) and SLR (2024). Therefore, no vegetation communities are considered at risk as a result of the Proposal.

Vegetation condition within the IDF (Table 7-16) is mainly 'Excellent' (90.86%), with the remainder ranging from 'Very Good' to 'Degraded' (5.55%). A total of 33.81 ha (3.58%) has been previously cleared. Table 7-17 details the clearing of vegetation types by condition.

Table 7-15: Overview of Vegetation Types within the Indicative Disturbance Footprint

Vegetation types	General Vegetation condition	DE (ha)	IDF (ha)	Proportion of impacts within the DE (%)	Extent remaining (%)
AaTe	Excellent	589.26	7.69	1.31%	98.69%
EIAbTI	Very Good to Excellent	15,183.93	101.54	0.67%	99.33%
ElGwTe	Excellent	4,033.24	44.54	1.10%	98.90%
EvAcCc	Degraded to Very Good	4,260.76	7.34	0.17%	99.83%
VfAI	Poor to Excellent	6,809.26	86.26	1.27%	98.73%
Mos (AiCpTe1, AiCpTe2 and AiSgTb)	Poor to Excellent	56,633.25	662.89	1.17%	98.83%
Total*	-	89,973.86	944.07	1.02%	98.95%

*A total of 844.56 ha within the DE and 33.81 ha within the IDF represent previously cleared areas. A total of 1,455.70 ha of other mapped vegetation types within the DE does not occur within the IDF.



Table 7-16: Overview of Vegetation Condition – Indicative Disturbance Footprint

Vegetation condition	Area within DE (ha)	Area within IDF (ha)	Proportion of impacts within the DE (%)	Extent remaining by condition (%)
Excellent	81,043.21	857.80	1.06%	98.94%
Very Good	3,220.24	20.39	1%	99%
Good	484.83	3.13	0.65%	99.35%
Poor	2,647.51	28.17	1.06%	98.94
Degraded	1,733.51	0.77	0.04%	99.96%
Total*	89,129.30	944.07	1.05%	98.95%

*A total of 844.54 ha within the DE and 33.81 ha within the IDF represent previously cleared areas.

Table 7-17: Clearing of Vegetation Types by Condition – Indicative Disturbance Footprint

Vegetation type	Vegetation condition clearing (ha)				
	Excellent	Very Good	Good	Poor	Degraded
AaTe	7.69	-	-	-	-
EIAbTI	99.72	1.82	-	-	-
EIGwTe	44.54	-	-	-	-
EvAcCc	-	1.02	-	5.55	0.77
VfAI	47.97	12.53	3.13	25.62	-
Mos (AiCpTe1, AiCpTe2 and AiSgTb)	657.88	5.02	-	-	-
Total*	857.80	20.39	3.13	28.17	0.77

*A total of 844.54 ha within the DE and 33.81 ha within the IDF represent previously cleared areas.

Conservation Significant Vegetation

Fourteen vegetation types within the DE represent potentially conservation significant vegetation due to one of the following factors; classified as a PEC (as mapped by DBCA), potentially representative of a PEC, habitat for Priority flora species, play a role in maintaining an important ecological process (i.e., riparian and/or groundwater dependent vegetation and refuge for fauna and flora species) or a locally restricted vegetation. Within the IDF, five vegetation types are considered to be conservation significant vegetation.

One vegetation type (VfAI) within the IDF is consistent with the DBCA listed community Four plant assemblages of the Wona Land System, Cracking clays of the Chichester and Mungaroona Range sub-community (P1). Some portions of VfAI are not included in the DBCA mapped extent of the PEC, but are consistent with the PEC, so are considered potential PEC for the purpose of this assessment. This vegetation type also represents a potential role as refuge and is considered significant for 'maintaining an important ecological process'.

The Proposal will clear up to 86.26 ha of VfAI, including:

- 76.65 ha of 'Four plant assemblages of the Wona Land System' PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1), and



- 9.61 ha of potential 'Four plant assemblages of the Wona Land System PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1).

The proportion of impacts within the DE and the DBCA mapped extent of the PEC within a 50 km buffer is described in Table 7-18.

Table 7-18: Clearing of Priority Ecological Community

Priority Ecological Community	Mapped vegetation within IDF (ha)	Mapped vegetation within DE (ha)	Mapped Vegetation within 50 km buffer (ha)**	Impacts within DE (%)	Impacts within 50 km buffer (%)
'Four plant assemblages of the Wona Land System' PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1)	76.65	5,225.35*	20,808.43	1.47%	0.37%
Potential 'Four plant assemblages of the Wona Land System' PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1)	9.61	1,583.91		0.61%	0.05%
Total	86.26	6,809.26	20,808.43	-	-

*Calculated based on the vegetation type VfAI mapped by ecologia (2025a) that overlaps DBCA Database.

**DBCA database without buffer area.

The total clearing of 'Four plant assemblages of Wona Land System' PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1) represents 1.47% of the mapped extent within the DE and 0.37% of the mapped extent within the 50 km buffer. According to the DBCA database (2025) approximately 13,338.71 ha (64.10%) of this PEC has been mapped within a 50 km buffer from the boundary of the DE. Given the small-scale impact and the remaining PEC area within DE and within 50 km of the DE, the proposed clearing of up to 86.26 ha of VfAI does not represent a significant impact for this vegetation.

Similarly, the clearing of vegetation that is considered a potential PEC represents 0.61% of the vegetation within the DE and 0.05% within a 50 km buffer. If it is assumed that areas of the potential PEC are actually the PEC, the total potential impact on the PEC represents 1.27% of the mapped extent within DE and 0.41% of its mapped extent within 50 km buffer. Given the small-scale impacts and the extent of the PEC in the local and regional area, the impacts on vegetation that is potentially the PEC are not considered significant.

The potential impact to the value of VfAI as a fauna refuge will be assessed in Chapter 8. This vegetation type is predominantly associated with the plain (cracking clays), plain (stony/gibber) and woodland (open) habitat types.

The DE contains 4,349.03 ha of riparian and groundwater dependent vegetation or potentially groundwater dependent vegetation (EvAcCc and EcAcCs). These vegetation types are significant for 'maintaining an important ecological process'. The IDF overlaps 7.34 ha of EvAcCc and does not overlap EcAcCs. The maximum clearing extent in a single location is 2.93 ha, while most of the clearing will be in small areas less than 0.5 ha. Therefore, given the relatively small scale of impact (0.17%), the proposed clearing of riparian/groundwater dependent vegetation is not anticipated to impact on the ability of the remaining vegetation to sustain itself. Further degradation of this vegetation after implementation of the Proposal, is not anticipated.



Four vegetation types within the DE are considered regionally important due to the presence of Priority flora species (AcTe, VfAI EIAbTI, EIGwTe). The majority of Priority flora individuals are concentrated within three of those vegetation types (VfAI, EIAbTI and EIGwTe) divided between five discrete areas of vegetation. The highest proportion of impacts within one discrete area will be 5.21% within Area 1 (VfAI). Area 1 has Priority flora individuals distributed across the discrete area. All other clearing will result in less than 4% of clearing per discrete area (Table 7-20).

As the clearing of 22.62 ha within Area 1 (VfAI) will be divided along approximately 3 km of linear infrastructure and given the small proportion to be cleared within Areas 2 to 5, this small loss of habitat will not significantly impact the ability of the remaining vegetation to support populations of Priority flora species.

The remaining vegetation that contains Priority species (Mos (AiCpTe1/AiCpTe2/AiSgTb), EVAcCc, AcTe and other areas of VfAI) only contain one to three occurrences, as recorded by ecologia (2025a). These vegetation types are therefore not considered a significant vegetation in this instance.

A summary of the potential impacts to conservation significant vegetation is shown in Table 7-19, Table 7-20 and Figure 7-8.

Table 7-19: Potentially Conservation Significant Vegetation within the Indicative Disturbance Footprint

Scale	Significance Criteria	Potentially significant Vegetation Types within IDF	Area within IDF (ha)	Area within DE (ha)	Proportion of impacts (%)
Regional Significance	Presence of potential PEC	VfAI	9.61	1,583.91	0.61%
	Presence of PEC		76.65	5,225.35	1.47%
	Presence of Priority flora species*	AcTe	0	114.54	-
		EIAbTI	47.02	2,383.18	1.97%
		EIGwTe	4.64	125.65	3.69%
		VfAI	Refer to Table 7-20		
	Role in maintaining an important ecological process (i.e., Riparian and/or groundwater dependent vegetation, and fauna and flora refuge)	EvAcCc	7.34	4,260.76	0.17%
VfAI		86.26	6,809.26	1.27%	

*These areas contain only areas of vegetation assessed as conservation significant vegetation.

Table 7-20: Significant Vegetation within the Indicative Disturbance Footprint – Priority Flora Species Habitat

Area	Vegetation type	Species	Individuals	Area (ha)	Clearing within the Area (ha)	Proportion of Impacts (%)
1	VfAI	<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3)	878	434.51	22.62	5.21%
		<i>Neptunia longipila</i> (P3)	1			



Area	Vegetation type	Species	Individuals	Area (ha)	Clearing within the Area (ha)	Proportion of Impacts (%)
		<i>Paspalidium retiglume</i> (P2)	100			
2	VfAI	<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3)	1	978.48	-	-
3	VfAI	<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3)	32	397.31	8.19	2.06%
		<i>Neptunia longipila</i> (P3)	2			
		<i>Swainsona thompsoniana</i> (P3)	755			
4	EIAbTI	<i>Ptilotus mollis</i> (P4)	268	2,383.18	47.02	1.97%
		<i>Neptunia longipila</i> (P3)	1			
5	EIGwTe	<i>Ptilotus mollis</i> (P4)	898	125.65	4.64	3.69%
6	AcTe	<i>Acacia cyperophylla</i> var. <i>omearana</i> (P1)	1,143	114.57*	-	-

*Areas mapped within the DE may exhibit connectivity beyond the Survey Area. Therefore, the entire extent within the DE was considered a discrete area (Area 6).



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Legend

Development Envelope	AcTe
GOV Towns	EIAbTI
Major Roads	EIGwTe
Fortescue Rail	EvAcCc
Roy Hill Rail	Mos
Indicative Disturbance Footprint	VfAI
Approved Disturbance (Nullagine Pilot Wind Farm)	

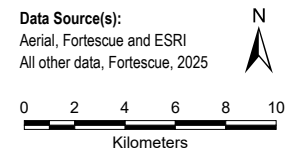


Figure 7-8
 Discrete Areas of Conservation Significant Vegetation - Priority Flora Species Habitat

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_014_r1_Cons_Sig_Veg
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Legend

- Development Envelope
- Indicative Disturbance Footprint
- Vegetation Type VfAI

Data Source(s):
 Aerial, Fortescue and ESRI
 All other data, Fortescue, 2025

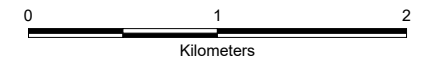


Figure 7-8-1
 Area 1 of Conservation Significant Vegetation
 Priority Flora Species Habitat






Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:40,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_014a_r0_Cons_Sig_Veg
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- Legend**
- | | |
|--|--|
|  Development Envelope |  AcTe |
|  Indicative Disturbance Footprint |  EvAcCc |
| |  VfAI |

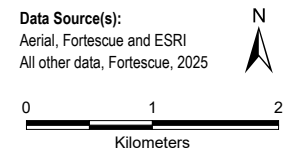


Figure 7-8-2
 Area 2 of Conservation Significant Vegetation
 Priority Flora Species Habitat

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:60,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_014b_r0_Cons_Sig_Veg
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Legend

- | | |
|--|--------|
| Development Envelope | EIAbTI |
| Indicative Disturbance Footprint | EIGwTe |
| Approved Disturbance (Nullagine Pilot Wind Farm) | VfAI |

Data Source(s):
 Aerial, Fortescue and ESRI
 All other data, Fortescue, 2025

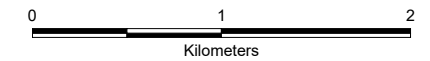


Figure 7-8-3
 Area 3 of Conservation Significant Vegetation
 Priority Flora Species Habitat

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 0
Approved By:	Confidentiality: 0
Scale: 1:40,000	

Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_014c_r0_Cons_Sig_Veg
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|  Development Envelope |  EIAbTI |
|  Indicative Disturbance Footprint |  Mos |
|  Approved Disturbance (Nullagine Pilot Wind Farm) |  VfAI |

Data Source(s):
 Aerial, Fortescue and ESRI
 All other data, Fortescue, 2025

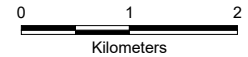


Figure 7-8-4
 Area 4 of Conservation Significant Vegetation
 Priority Flora Species Habitat

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 0
Approved By:	Confidentiality: 0
Scale: 1:70,000	

Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_014d_r0_Cons_Sig_Veg
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805,000

807,500



Legend

- Development Envelope
- Indicative Disturbance Footprint
- Approved Disturbance (Nullagine Pilot Wind Farm)
- Vegetation Type EIGwTe
- Vegetation Type VfAI

Data Source(s):
 Aerial, Fortescue and ESRI
 All other data, Fortescue, 2025

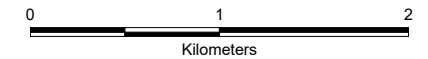


Figure 7-8-5
 Area 5 of Conservation Significant Vegetation
 Priority Flora Species Habitat

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:40,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_014e_r0_Cons_Sig_Veg
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807,500

810,000

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7,575,000

7,572,500

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807,500

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Legend

-  Development Envelope
-  AcTe
-  EvAcCc
-  VfAI

Data Source(s):
 Aerial, Fortescue and ESRI
 All other data, Fortescue, 2025

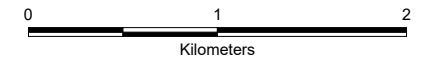


Figure 7-8-6
 Area 6 of Conservation Significant Vegetation
 Priority Flora Species Habitat

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:40,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_014f_r0_Cons_Sig_Veg
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7.7.1.2 Clearing of Conservation Significant Flora Species

Thirteen Priority flora species occur within the DE. Of those, seven Priority flora species are proposed to be directly impacted by the Proposal. Table 7-21 shows the species, number of individuals within the DE, number of individuals within the IDF, and proportion of impacts based on local records (Fortescue and DBCA database records within approximately 50 km buffer of the DE). In addition, there is the potential for accidental clearing of individuals near the IDF. This risk will be managed through clear demarcation of the areas to be cleared (details on demarcation of areas is provided in Section 7.6).



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Table 7-21: Clearing of Conservation Significant Flora Species

Conservation Significant flora species	Individuals (Occurrences) within IDF*	Individuals (Occurrences) within DE*	Individuals (occurrences) within Survey Area*	Total known Individuals (occurrences) within 50 km buffer**	Impacted individuals within DE (%)	Impacted Individuals within 50 km buffer (%)
<i>Paspalidium retiglume</i> (P2)	1 individual (1)	259 individuals (8)	260 individuals (9)	260 individuals (9)	0.39%	0.38%
<i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3)	23 individuals (3)	750 individuals (25)	750 individuals (25)	751 individuals (26)	3.07%	3.06%
<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3)	72 individuals (6)	1977 individuals (90)	1,977 individuals (90)	2,017 individuals (100)	3.64%	3.57%
<i>Neptunia longipila</i> (P3)	10 individuals (1)	189 individuals (9)	189 individuals (9)	189 individuals (9)	5.29%	5.29%
<i>Swainsona thompsoniana</i> (P3)	18 individuals (3)	977 individuals (41)	997 individuals (42)	1,006 individuals (51)	1.84%	1.79%
<i>Iotasperma sessilifolium</i> (P3)	1 individual (1)	1 individual (1)	1 individual (1)	5 individuals (5)	100.00%	20.00%
<i>Ptilotus mollis</i> (P4)	35 individuals (1)	1174 individuals (43)	1174 individuals (43)	7,705 individuals (311) ***	2.98%	0.45%

*Total number of individuals estimated based on ecologia (2025a).

**Includes records from spatial data provided by DBCA (WAHERB and TPFL), and records from the Fortescue Database (including records from ecologia (2025a) WAHerb records often provide the count (frequency) in descriptors such as common, occasional and scattered without providing an actual number of plants. For the purposes of this assessment these records have been counted as one individual for no comment, five individuals for 'scattered' or 'occasional' or 'uncommon', and 50 individuals for common/frequent/abundant.

***Including a total of 5,919 individuals (238 occurrences) recorded in McPhee Creek Iron Ore Project (Atlas, 2022), 30 km from the DE.



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***Paspalidium retiglume* (P2)**

The proposed clearing of a single individual of *Paspalidium retiglume* represents 0.39% of the total individuals within the DE and 0.38% of individuals within the 50 km buffer. The nearest occurrence is 2 km away from the single individual, indicating no connectivity between these occurrences. Following the proposed clearing, 258 individuals will remain within the DE. As this species prefers clay soils, which are widespread in the region, it may be more prevalent than currently estimated. Given that more than 99% of the recorded individuals within the DE will remain, and it is likely that the species is widespread in suitable habitat in the local area, clearing of one individual of the species is not considered significant.

***Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3)**

The proposed clearing of 23 individuals of *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) represents 3.07% of the total individuals recorded within the DE and 3.06% of the total individuals within a 50 km buffer. Given the widespread presence of inundated clay soils associated with stony gibber plains in this region, this species is likely to occur frequently in the local area in similar habitat. Direct impacts to *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) are not considered significant due to the small percentage of individuals impacted and the likely presence of further (unsurveyed) individuals in the region.

***Euphorbia inappendiculata* var. *queenslandica* (P3)**

The proposed clearing of 72 individuals of *Euphorbia inappendiculata* var. *queenslandica* represents 3.64% of the individuals within DE and 3.57% within 50 km buffer. As this species is associated with cracking clay soils, there is a high potential for it to occur more broadly in the local area in similar soils. This is further supported by the high number of individuals recorded within the DE. While there are no previous records of this species in the DE, the high number of individuals recorded during the survey (1,977 individuals) suggests that it is likely to be common in suitable habitat throughout the region. Given this, and the relatively small proportion of impact, the proposed impact to the species is not considered to be significant.

***Neptunia longipila* (P3)**

The proposed clearing of 10 individuals of *Neptunia longipila* represents 5.29% of the total individuals recorded within the DE and the 50 km buffer. The nearest known occurrence is 650 m from the 10 individuals within the DE, suggesting this is a separate sub-population with no, or limited connectivity between them. Following the proposed clearing, 179 individuals will remain within the DE. As more than 90% of recorded individuals will remain, it is unlikely that the proposed clearing will impact the survival of the species at either a local or species level. The proposed impact to *Neptunia longipila* is therefore not considered significant.

***Swainsona thompsoniana* (P3)**

The proposed clearing of 18 individuals of *Swainsona thompsoniana* represents 1.84% of individuals within the DE and 1.79% within the 50 km buffer. The occurrences are located near others (approximately 300 m away) suggesting they belong to the same sub-population. Following the implementation of the Proposal, 959 individuals will remain within the DE. As more than 95% of recorded individuals will remain, it is unlikely that the proposed clearing will impact the survival of the species at the local or species level. The impact to *Swainsona thompsoniana* is therefore not considered significant.



***Iotasperma sessilifolium* (P3)**

The proposed clearing of one individual of *Iotasperma sessilifolium* represents 100% of the individuals within the DE and 20% of occurrences within 50 km buffer. *Iotasperma sessilifolium* has a broad distribution across northern WA, the Northern Territory, western Queensland and northern South Australia. Records in WA are typically associated with surveys undertaken for mining developments, suggesting that additional survey effort in the Pilbara and Kimberly regions, in appropriate habitat, would likely record additional individuals and populations of the species. Additionally, a single individual does not constitute a viable population, with the individual likely to die off naturally with no recruitment occurring. Loss of this individual is therefore unlikely to impact the survival of the species at either a local or species level. The clearing of one individual of *Iotasperma sessilifolium* is therefore not considered significant.

***Ptilotus mollis* (P4)**

The proposed clearing of 35 individuals of *Ptilotus mollis* represents 2.98% of individuals recorded within the DE and 0.45% within 50 km buffer. The closest occurrence is 9 km away from the individuals in the DE, indicating no connectivity between occurrences. Following the Proposal, 1,751 individuals will remain within the DE. As more than 95% of recorded individuals within the DE will remain, it is unlikely that the proposed clearing will impact the survival of the species at either a local or species level. The impact to *Ptilotus mollis* is therefore not considered significant.

7.7.2 Indirect Impacts

7.7.2.1 Fragmentation of Sub-populations

The roads and electrical reticulation forming part of the Proposal are linear in nature and can result in fragmentation of vegetation or flora species populations and/or create edge effects. Habitat fragmentation can interfere with the functional connectivity between individual species if they become separated across an impassable barrier such as preventing the exchange of genes through pollen and seed flow, which is essential for maintaining sufficient genetic diversity and ensuring adaptive potential.

Due to the linear nature of the electrical reticulation and associated road infrastructure, clearing will occur between populations of conservation significant flora species, including *Euphorbia inappendiculate* var. *queenslandica* (P3), *Neptunia longipila* (P3), *Nicotiana umbratica* (P3), *Paspalidium retiglume* (P2), *Ptilotus mollis* (P4) and *Swainsona thompsoniana* (P3). The Threatened and Priority Flora Field Manual (DBCA, 2017b) advises that individuals greater than 500 m from each other are considered separate populations or sub-populations. The IDF will not increase the separation between occurrences in a way that will divide populations and interfere with genetic transfer between those populations.

The clearing associated with the linear elements of the Proposal infrastructure will be up to approximately 50 m wide, it is unlikely this would act as a barrier to dispersal and/or pollination of these species within the DE, particularly where pollination is via wind or birds. In addition, given the nature of the electrical reticulation infrastructure being open span, and the extremely low amount of traffic anticipated on the access roads, it is not anticipated that these elements would act as a physical barrier to pollination within the area.



It is not expected that the Proposal will interfere with genetic connectivity or fragment sub-population of conservation significant flora species. Therefore, no significant impact due to fragmentation of sub-populations is expected.

7.7.2.2 Edge Effects on Conservation Significant Flora Species

Edge effects cause changes in plant communities and flora habitat through abiotic conditions (light, temperature and humidity), preventing dispersal of seeds and potential increase of weeds (Eldegard *et al.*, 2015).

There is no established conservation buffer for Priority species within the DE, however the EP Act defines vegetation within 50 m of Threatened flora as an Environmentally Sensitive Area. Therefore, a 50 m buffer from the IDF was used to assess edge effects on the recorded individuals of conservation significant species. This assessment identified the Proposal may indirectly impact three conservation significant flora species (Table 7-22, Figure 7-9). These individuals may be indirectly impacted during operational activities, such as general maintenance activities and movement of vehicles. After the construction phase, 480.81 ha (this includes 13.94 ha of areas previously cleared by other activities not related to this Proposal) will be progressively rehabilitated throughout construction as the works in each area are complete. After the rehabilitation, there is a potential impact to individuals of three conservation significant flora species within the 50 m buffer (Table 7-22).

In a worst-case scenario, the potential loss of those individuals due to edge effects combined with clearing for the Proposal, would result in an increased impact to these populations (Table 7-22). However, edge effects on significant flora species will occur mainly within three areas of vegetation, of which two are dominated by *Euphorbia inappendiculate* var. *queenslandica* (P3) and one by *Ptilotus mollis* (P4). Even in the worst-case scenario, the potential loss of those individuals would not represent an impact that could affect the survival of the species at either a local or species level, given that the edge effects on those populations will not fragment populations or remove individuals or habitat to an extent that the species is unlikely to survive.

The potential edge effects on *Paspalidium retiglume* (P2) may represent a significant loss of individuals recorded within the DE. However, ecologia (2025a) recorded seven other occurrences of this species within the DE, the closest being approximately 4 km from the potentially impacted occurrence. Given the broad distribution of the species within the DE and the expected lack of genetic connectivity between this occurrence and the remaining seven, it is unlikely that the potential loss of this occurrence would negatively affect the survival of the species at either a local or species level.

Indirect impacts related to dust deposition on conservation significant flora is also considered a potential impact. Dust generation during the construction phase will be managed through standard construction site control measures, such as water dust suppression techniques during dust generating activities. Therefore, dust is not anticipated to pose a risk of significant impact to conservation significant flora species in the area. Other impacts relating to dust generation are discussed further in Section 7.7.2.4.



Table 7-22: Conservation Significant Flora Species within 50 m Buffer

Conservation significant species	Individuals within IDF	Individuals within 50 m buffer IDF	Individuals within 50m buffer from Permanent Clearing	Worst-case scenario*; proportion of impact within the DE (%)	Worst-case scenario; proportion of impact within 50 km (%)
<i>Paspalidium retiglume</i> (P2)	1	100	100	39.00%	38.85%
<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3)	72	180	180	12.75%	12.49%
<i>Ptilotus mollis</i> (P4)	35	105	105	11.93%	1.82%

*Worst-case scenario is the potential loss of all individuals within 50 m buffer and those directly impacted by the Proposal.



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Legend

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| Development Envelope | AaTe |
| GOV Towns | AaTs |
| Major Roads | AcTe |
| Fortescue Rail | AeTe |
| Roy Hill Rail | AhCspYTe |
| Indicative Disturbance Footprint | AmTe |
| Approved Disturbance (Nullagine Pilot Wind Farm) | AoTe |
| Cleared | EcAcCs |
| AaCpTw | EIAbTI |
| AaEp | ElGwTe |
| | EvAcCc |
| | Mos |
| | VfAI |

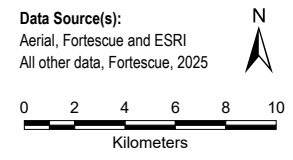


Figure 7-9-1
 Priority Flora Species
 Habitats and Occurrences

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_015a_r1_Priority_Flora
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Legend

- Development Envelope
- AaTe
- GOV Towns
- AaTs
- Major Roads
- AcTe
- Fortescue Rail
- AeTe
- Roy Hill Rail
- AhCspYTe
- Indicative Disturbance Footprint
- AmTe
- Approved Disturbance (Nullagine Pilot Wind Farm)
- AoTe
- Vegetation Type
- Cleared
- ElGwTe
- AaCpTw
- EvAcCc
- AaEp
- Mos
- VfAl

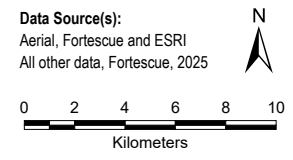


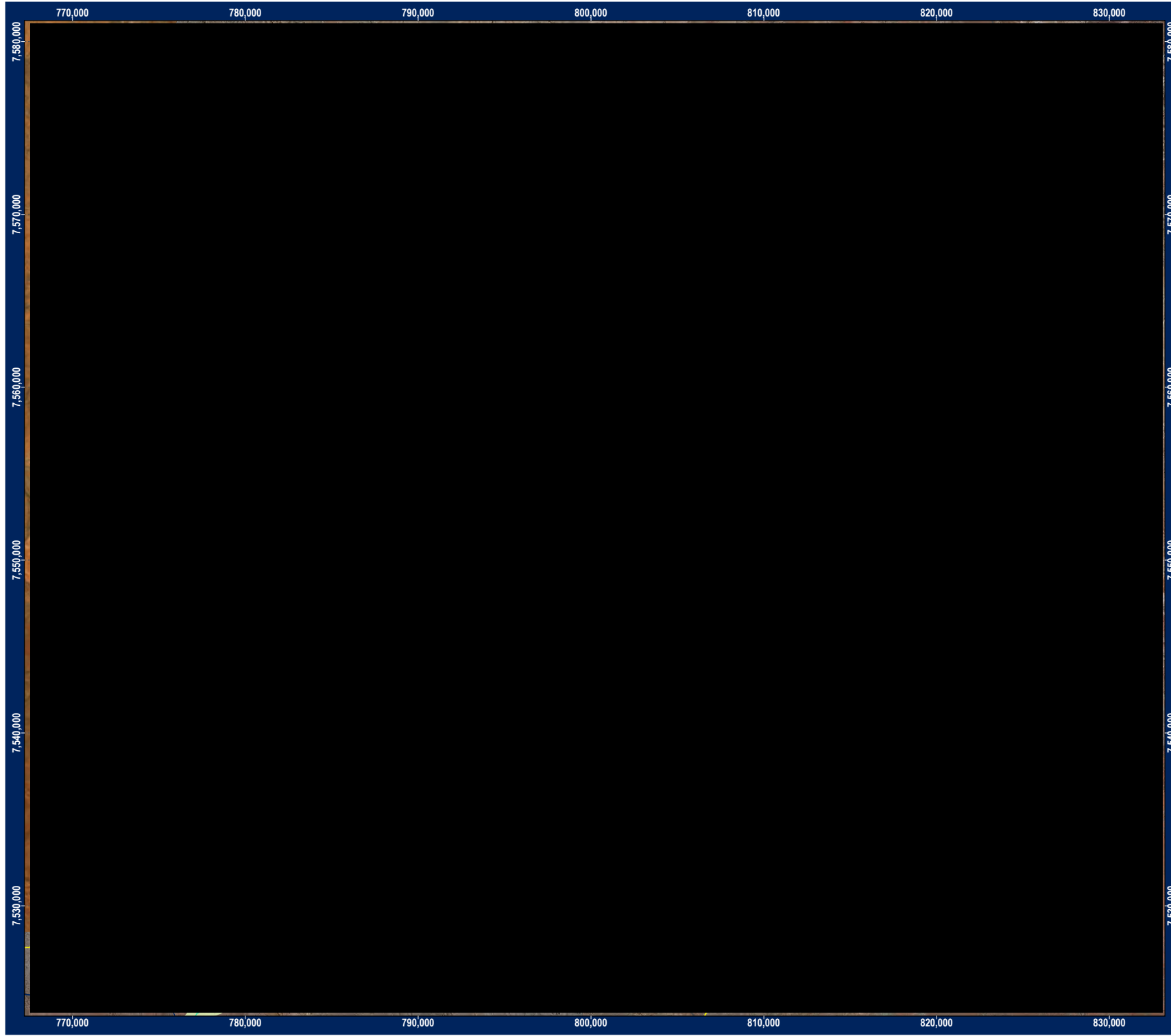
Figure 7-9-2
 Priority Flora Species
 Habitats and Occurrences

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
 Document Name: 4519OP002_MP_EN_0093_015b_r1_Priority_Flora
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Legend

- Development Envelope
- AaTe
- AaTs
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- AhCspYTe
- AmTe
- AoTe
- EcAcCs
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- ElGwTe
- EvAcCc
- Mos
- VfAl
- Cleared
- AaCpTw
- AaEp
- AaTs
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- AmTe
- AoTe
- EcAcCs
- EIAbTI
- ElGwTe
- EvAcCc
- Mos
- VfAl

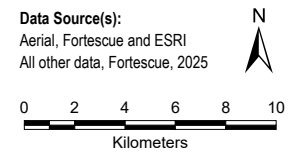


Figure 7-9-3
 Priority Flora Species
 Habitats and Occurrences

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV
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7.7.2.3 Introduction and/or Spread of Weed Species

Twenty-five species of introduced flora (weeds) were recorded within the DE (ecologia, 2025a). No WoNs were recorded in the DE, however, one Declared Pest for the Pilbara region under the BAM Act was recorded: **Calotropis procera* (Calotrope). There are no specific management or eradication requirements for this species noted on the WA Organism List database.

Weed species can be spread through the movement of soil or vegetative matter on boots, vehicles and machinery or the movement of topsoil and other bulk earthworks material. Additionally, rehabilitation activities pose a risk of spreading or introducing new weed species due to the re-use or importation of topsoil or other possible contaminated materials, such as tubestock/seedlings.

Construction and operational activities, such as clearing activities, traffic movements, and putrescible wastes, have the potential to introduce or spread weed species within the area.

Standard mitigation measures will be implemented to reduce the risk of introducing new weed species to the DE or spreading those species already present, in line with Fortescue's Weed Management Plan (Reference: 45-PL-EN-0033) provided in Appendix E, and measures outlined in the EMP Appendix B). As such, it is unlikely that new weed species will be introduced and the risk of spreading existing weeds within the DE is considered to be low and no significant impacts are expected to occur to native vegetation.

7.7.2.4 Fragmentation of and edge effects on Priority Ecological Community

Similar to the indirect impacts discussed in Section 7.7.2.2, the 'Four plant assemblages of the Wona Land System' PEC (P1, P3) can also be indirectly impacted by edge effects. This PEC and potential PEC is represented by vegetation type VfAI. Following implementation of the Proposal, 7 patches of this vegetation will be fragmented to one or more areas (Figure 7-10).

There is no established conservation buffer for PECs. However, as a precautionary measure, a 50 m buffer was applied to fragmented vegetation patches in the IDF to assess potential indirect impacts. Based on this approach, the Proposal may indirectly impact 86.26 ha of 'Four plant assemblages of the Wona Land system' PEC or potential 'Four plant assemblages of the Wona Land system' PEC. After construction, 38.32 ha of the total VfAI cleared for Proposal will be progressively rehabilitated, which will decrease the impact of edge effects on the PEC. A total of 230.60 ha (including rehabilitation areas) may be indirectly impacted by the Proposal, following the rehabilitation activities:

- 205.08 ha of 'Four plant assemblages of the Wona Land system' PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1)⁶, and
- 25.52 ha of potential 'Four plant assemblages of the Wona Land system' PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1)⁷.

⁶ Vegetation type VfAI that overlaps the area previously mapped by DBCA as the 'Four plant assemblages of the Wona Land System' PEC (P1, P3)

⁷ Vegetation type VfAI that does not overlap the area previously mapped by DBCA as the 'Four plant assemblages of the Wona Land System' PEC (P1, P3) and therefore is not confirmed as the PEC.



As described in Table 7-7, the majority of the PEC and potential PEC within the DE is in 'Excellent' to 'Very Good' condition. Therefore, there is a potential that the Proposal will result in a decrease in vegetation condition due to edge effects.

In the worst-case scenario, where edge effects degrade the vegetation to an extent that it no longer can be classified as a PEC, the combined impact of this degradation with the proposed direct clearing, would affect 3.92% of PEC and 1.61% of potential PEC within the DE.

Considering the potential classification of VfAI as a PEC (P1), the worst-case scenario would represent 1.11% of the mapped extent of the PEC (P1) within a 50 km buffer. Therefore, given the regional extent of this vegetation, this loss would not represent a significant impact to this vegetation.

Table 7-23: Edge Effects on Priority Ecological Community










Priority Ecological Community	Area within IDF (ha)	Area within 50m buffer of IDF (ha)	Combined potential impacts (ha)	Proportion of impacts within DE (%)	Proportion of impacts within 50 km buffer (%)
Four plant assemblages of the Wona Land system' PEC (P1)	76.65	128.43	205.08	3.92%	1.11%
Potential Four plant assemblages of the Wona Land system' PEC (P1)	9.61	15.91	25.52	1.61%	
Total	86.26	144.34	230.60		



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Legend

-  Development Envelope
 -  GOV Towns
 -  Major Roads
 -  Fortescue Rail
 -  Roy Hill Rail
 -  Indicative Disturbance Footprint
 -  Approved Disturbance (Nullagine Pilot Wind Farm)
 -  Four plant assemblages of the Wona Land system' PEC (P1, P3)
- Vegetation Type**
-  VfAI

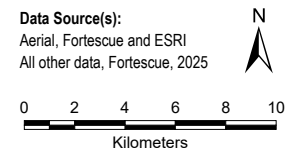


Figure 7-10
 Edge Effects on
 Priority Ecological Communities

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 1
Approved By:	Confidentiality: 0
Scale: 1:300,000	
Coordinate System: GDA 1994 MGA Zone 50	
Project Name: 4519OP002_MP_EN_0093_PartIV	
Document Name: 4519OP002_MP_EN_0093_016_r1_Edge_Effects	
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7.7.2.5 Indirect impacts on Riparian or Groundwater Dependent Vegetation

Surface hydrologic process is often correlated to groundwater depth dynamics and represent an important component of ecohydrological characteristics that control groundwater-dependent vegetation (Peng *et al.*, 2024). Therefore, alterations in the hydrological process within the DE may impact groundwater dependent vegetation.

A post-development hydrological assessment (Fortescue, 2024) and baseline hydrology and qualitative impact assessment (Fortescue, 2025) were carried out to evaluate the potential changes to the existing surface water flow regime as a result of the Proposal (Refer to Chapter 10.1 for a complete impact assessment). Note these studies were completed for a much larger disturbance footprint than the current Proposal (which has subsequently been reduced through implementation of the mitigation hierarchy to avoid environmental values), and therefore report a substantially worse case in terms of impacts than the Proposal.

It was concluded that the construction of turbines, access track/waterway crossing, minor and major crossing on creek hydrology, and associated Proposal infrastructure, are not expected to significantly impact surface water flows (Fortescue, 2025; 2024).

Changes to the surface water flow regime are expected to be localised and limited to areas near turbine access tracks and waterway crossings. Minor crossings are anticipated to have low impacts on creek hydrology and morphology, while impacts from major crossings are expected to remain confined to the immediate vicinity of the structures (Fortescue, 2024b). Potential minor localised impacts on Riparian or Groundwater Dependent Vegetation will be regulated under other legal instruments, including the MDCP required under the *Mining Act 1978* which regulates potential indirect impacts on vegetation as a result of the Proposal. An example of this is the Nullagine pilot wind farm project within the DE (MDCP REG ID 500678) that was approved in 2025. Through this process, potential indirect impacts on Riparian or Groundwater Dependent Vegetation will be minimised and will not be significant.

7.7.2.6 Dust Deposition

Dust deposition on vegetation can affect photosynthesis through interception of solar radiation, alteration of the radiant energy balance, and act as a barrier to gas diffusion on leaf surfaces (Doley, 2020). Research shows that the impact of dust depends on leaf traits like surface roughness and posture. Leaves with traits that accumulate less dust (flat, smooth leaves) experience more stress as dust interferes with gas exchange (Turner, 2013). Dust deposition impact decreases with distance from the source (Matsuki *et al.*, 2016).

There is no publicly available assessment of dust impacts on the conservation significant flora species that occur within the DE. However, monitoring undertaken by Matsuki *et al.* (2016) in other regions of WA did not find evidence to support that dust accumulation on plants causes negative impacts at rates up to 20 to 77 g/m² per month. Dust generated from the construction activities will be managed in accordance with Fortescue's Dust Management Plan (IO-PL-EN-0001) and is not expected to pose a risk to native vegetation.

In addition, the majority of potential dust impacts associated with the Proposal will occur during construction activities, which will be short-term, temporary, and localised. Dust generation from operational activities is anticipated to be minimal and limited to vehicle movements, which are infrequent. It is therefore considered that dust impacts to flora will be negligible. Further, the EMP prepared for the Proposal will include standard mitigation measures to reduce dust generation (Appendix B).



7.7.2.7 Increased Risk of Bushfires

Wind turbines pose a risk of fire incidents, mostly associated with lightning strikes (acting as conductors) and mechanical failures, often exacerbated by the presence of combustible material (You *et al.*, 2023). Similarly, electrical reticulation lines can cause wildfires through failures, pole top or transformer fires and outages from wildfires (Panossian & Elgindy, 2023).

Climate projections for northern Australian Rangelands, including the Pilbara, suggest that temperatures will continue to rise. By 2030, the mean annual warming across all emissions scenarios is projected to be about 0.6 to 1.4°C above the climate of 1986–2005. By 2090, temperatures are projected to be 1.5 to 2.9°C warmer under an intermediate emissions scenario (RCP 4.5) (DWER, 2021d). A substantial increase in the temperature reached on the hottest days and the frequency of hot days is projected. Given these projections, it is anticipated that the bushfire risk and intensity of events will increase in response to the changing climate, which could further exacerbate the risks associated with the Proposal.

Increased frequency and intensity of fire incidents can affect vegetation through removal or reduction of biomass, alteration of vegetation structure, increase of weeds due to decrease of competition for resources and alteration of seed dispersal and germination, consequently affecting the vegetation composition within the affected area (Stavi, 2019; Fisher *et al.*, 2009). Given the regular wildfire activity in the region as discussed in Section 7.4.10, fuel loads are considered to be generally low across the entire DE. Fire risk will be managed in accordance with Fortescue standard control measures, which aim to minimise risks as far as practical. In addition, the 2 ha cleared areas around the turbine locations are anticipated to reduce the risk of fire from lightning strikes. Therefore, increased risk of bushfires associated with the Proposal is not expected to pose a significant risk to native vegetation.

7.7.3 Cumulative Impacts

Cumulative environmental impacts are the successive, incremental, and interactive impacts on the environment of a Proposal with one or more past, present and reasonably foreseeable future activities (EPA, 2021b). This section outlines the potential cumulative impacts to flora and vegetation values as a result of the Proposal and other surrounding developments either recently approved or currently under EPA assessment.

In undertaking a cumulative impact assessment, the following assumptions are noted:

- Cumulative impacts resulting from third-party operations are based on information available in the public domain for third party operators and does not encapsulate impacts for all third-party operations in the region,
- Cumulative impact calculations generally do not take into consideration areas outside of those assessed under Part IV of the EP Act, or EPBC Act referrals, for each relevant proposal. Where relevant, large clearing permits under Part V of the EP Act may also be included depending on the quantity and quality of information available, and
- The accuracy of data from external sources will not be verified and it is assumed that data publicly available is accurate and collected in accordance with standard industry guidelines.

Cumulative impacts have been considered against the following flora and vegetation aspects:



- Pre-European vegetation associations (Beard *et al.* 2013)⁸,
- Conservation significant flora,
- Groundwater dependent vegetation, and
- Priority Ecological Community – ‘Four plant assemblages of the Wona Land System’ (P1, P3).

There are several reasonably foreseeable developments within the Proposal region and, more broadly, within the Chichester and Fortescue subregions of the Pilbara bioregion. Although not directly comparable proposals, they involve removal of native vegetation. In the cumulative impact assessment process, the spatial boundaries depend on the area of influence for the specific impact being considered.

For the assessment of cumulative impacts to conservation flora species, the projects were selected based on the following criteria:

- Proposals assessed and submitted between 2019 and 2026 (assumed to be 'reasonably foreseeable future activities' as proposals would generally be conditioned to commence implementation within five years of approval and are otherwise anticipated to be included in the existing environment data),
- Proposals within 10 km buffer from current known occurrences (ALA, 2025), and
- Proposals that haven't started pre-construction activities yet.

For the assessment of cumulative impacts to vegetation, including the PEC and groundwater dependent vegetation, relevant projects within the Chichester subregion were selected.

Conservation significant flora species

A total of eight projects contribute to cumulative impacts on one or more of the conservation significant flora species identified within the DE:

- Nullagine Pilot Wind Farm Project
- Corunna Downs Project,
- Eliwana Railway Project,
- Eliwana Iron Ore Mine Project,
- Hope Downs 2,
- McPhee Creek Iron Ore Project,

⁸ Given the differences in surveyors, methodologies and mapping between projects, direct comparison of the vegetation mapping between schemes is not always achievable. In order to determine the cumulative impacts, a comparison against the Beard vegetation associations remaining extents has been undertaken to provide a regional assessment.



- North Star Magnetite Project Extension,
- Sulphur Springs Zinc-Copper Project, and
- Mulga Downs Hub and Rail Spur.

The conservation significant flora species, *Paspalidium retiglume* (P2) and *Iotasperma sessilifolium* (P3) were not included in the cumulative assessment. The clearing of one individual of each of these species as a result of the Proposal will not increase the cumulative impacts to a significant extent. A single, isolated individual cleared by the Proposal is unlikely to represent a viable population and will not contribute to the flow of genetic information between populations.

The cumulative impacts on conservation significant flora species anticipated to occur as a result of this Proposal and the projects mentioned above are identified in Table 7-24.



Table 7-24: Impacts to Conservation Significant Flora Species Associated with Other Surrounding Projects

Reported Direct Impacts - Significant flora impacted that is common between the cumulative projects					
Projects	<i>Neptunia longipila</i> (P3)	<i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3)	<i>Euphorbia</i> <i>inappendiculata</i> var. <i>queenslandica</i> (P3)	<i>Ptilotus mollis</i> (P4)	<i>Swainsona</i> <i>thompsoniana</i> (P3)
The Proposal	10 individuals	23 individuals	72 individuals	35 individuals	18 individuals
Nullagine Pilot Wind Project	Not directly impacted.	Not directly impacted.	Not directly impacted.	Not directly impacted.	Not directly impacted.
Corunna Downs Project (58 km from the Proposal)	Not directly impacted.	Not directly impacted.	Not directly impacted.	Not directly impacted.	1 individual
Eliwana Iron Ore Mine Project (250 km from the Proposal)	Not directly impacted.	Not directly impacted.	Not directly impacted.	193 individuals	Not directly impacted.
Eliwana Railway Project (190 km from the Proposal)	Not directly impacted.	Not directly impacted.	5 individuals	2 individuals	1 individual
Hope Downs 2 (97 km from the Proposal)	Not directly impacted.	Not directly impacted.	Not directly impacted.	45 individuals	Not directly impacted.
McPhee Creek Iron Ore Project (30 km from the Proposal)	Not directly impacted.	Not directly impacted.	Not directly impacted.	842 individuals	Not directly impacted.
Mulga Downs Hub and Rail Spur (76 km from the Proposal)	Not directly impacted.	2 individuals	Not directly impacted.	Not directly impacted.	Not directly impacted.
North Star Magnetite Project Extension (108 km from the Proposal)	Not directly impacted.	Not directly impacted.	Not directly impacted.	101 individuals	Not directly impacted.
Sulphur Springs Zinc-Copper Project (110 km from the Proposal)	Not directly impacted.	Not directly impacted.	Not directly impacted.	1 individual	Not directly impacted.
Total Impacts	10 individuals	25 individuals	77 individuals	1,219 individuals	20 individuals
Total Known Records	9	2,553	2,843	22,607	6,003



Reported Direct Impacts - Significant flora impacted that is common between the cumulative projects					
Projects	<i>Neptunia longipila</i> (P3)	<i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3)	<i>Euphorbia</i> <i>inappendiculata</i> var. <i>queenslandica</i> (P3)	<i>Ptilotus mollis</i> (P4)	<i>Swainsona</i> <i>thompsoniana</i> (P3)
Estimated number of individuals*	690	2,553	2,843	22,607	6,003
% Cumulative Impact	1.5%	1.0%	2.7%	5.4%	0.3%

* The total number of individuals is not documented for many of the priority species, therefore for the purposes of this assessment, the total number of individuals has been estimated based on (TPLF and WA Herbarium 2025 data within 50km of the DE, Fortescue's database records beyond 50km, and publicly available data in documentation from other Proposals in the region).



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Vegetation

A total of five projects contribute to cumulative impacts on pre-European vegetation, Groundwater dependent vegetation and Four plant assemblages of the Wona Land System (PEC P1, P3):

- Nullagine Pilot Wind Farm
- Mulga Downs Hub and Rail Spur,
- Mulga Downs Iron Ore Mine,
- North Star Magnetite Project Extension, and
- Sulphur Springs Zinc-Copper Project.

The cumulative impacts on vegetation anticipated to occur as a result of this Proposal and the projects mentioned above are identified in Table 7-25.



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Table 7-25: Impacts to Vegetation Associated with Other Surrounding Projects

The Proposal and cumulative projects	Reported direct impacts to vegetation		
	Vegetation association removal that is common between the cumulative projects	GDV and potential GDV	Four plant assemblages of the Wona Land System (PEC P1, P3)
The Proposal	Chichester (173) – 944.07 ha	7.34 ha	86.26 ha*
Nullagine Pilot Wind Farm	Chichester (173) – 318.77 ha	11.5 ha	None directly impacted
McPhee Creek Iron Ore Project (30 km distant from the Proposal)	Chichester (173) - 590.2 ha The remaining proposed clearing is within Chichester (171) and therefore not anticipated to cause combined impacts on any other vegetation associations.	24.0 ha	None directly impacted
Mulga Downs Hub and Rail Spur (76 km distant from the Proposal)	Chichester (173) – 808.11 ha The remaining proposed clearing is within Chichester (93, 175) and Fortescue (29) and therefore not anticipated to cause combined impacts on any other vegetation association.	101.55 ha	344.26 ha
North Star Magnetite Project Extension (108 km distant from the Proposal)	All proposed clearing is within Chichester (82) and therefore not anticipated to cause combined impacts on a vegetation association.	20.1 ha	None directly impacted
Sulphur Springs Zinc-Copper Project (110 km distant from the Proposal)	All proposed clearing is within Chichester (82 and 93) and therefore not anticipated to cause combined impacts on a vegetation association.	9.7 ha	None directly impacted
Total cumulative Impact	Chichester (173) – 2,661.15	174.19 ha	430.52 ha
Total Known Extent	Chichester (173) – 1,739,189.58 ha	N/A	94,005.20 ha
% Cumulative Impact	Chichester (173) – 0.15 %	N/A	0.46 %

*86.26 ha includes PEC and potential PEC mapped by ecologia (2025a).



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The potential cumulative impacts on the pre-European extent of vegetation remaining in the Chichester and Fortescue subregions are:

- Chichester subregion:
 - Clearing of 2,661.15 ha of vegetation association 173, and

The National Objectives and Targets for Biodiversity Conservation includes a target to avoid further clearing of vegetation of any vegetation association with a pre-European extent of below 30% (Commonwealth of Australia, 2001).

More than 99% of vegetation association 173 (Chichester) would remain even when accounting for cumulative clearing. Given that the combined impacts on this pre-European vegetation will not decrease the vegetation association below 30% at any scale, impacts are not anticipated to be significant.

The combined direct impacts to 'Four plant assemblages of the Wona Land System' PEC Cracking clays of the Chichester and Mungaroona Range sub-community (P1) as a result of implementation of the Proposal and the other projects will result in the cumulative removal of 430.52 ha of this PEC. While it is not explicitly stated in the Mulga Downs Hub and Rail Spur documentation, it is assumed that the sub-community impacted by this project is the Cracking clays of the Chichester and Mungaroona Range, due to the project location and reference to the PEC as P1.

The DE contains over 6,809.26 ha of the mapped extent of this PEC, with DBCA database recording 13,338.71 ha outside of the DE within a 50 km buffer. It should be noted that the DBCA mapping does not define areas by sub-community. The total mapped extent of the PEC is over 94,000 ha, of which the total cumulative clearing reported in Table 7-25 represents just 0.46%. Given the mapped extent of the PEC (P1 and P3 areas) in the DE, and much larger total mapped extent compared to the cumulative impacts, the combined clearing is not anticipated to result in a significant cumulative impact.

The combined direct impacts to riparian and groundwater dependent vegetation will result in removal of 174.19 ha, although the actual impact is likely to be lower. The local areas surrounding the projects considered in the cumulative assessment likely contain a large amount of groundwater dependent vegetation, with the DE containing over 4,349.03 ha and the other projects in the assessment containing at least 3,061.50 ha. Therefore, given that the cumulative impacts have a relatively small-scale combined clearing (2.35% of likely GDV), clearing in any one area is small, and waterways in the region are generally well vegetated, the cumulative impact is not considered to be significant.

Four conservation significant flora species may be subject to cumulative impacts as detailed in Table 7-24: *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3), *Euphorbia inappendiculata* var. *queenslandica* (P3), *Swainsona thompsoniana* (P3) and *Ptilotus mollis* (P4).

A total of 25 individuals of *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3) will be impacted. The cumulative impact to *Dolichocarpa* sp. represents only 1.0% of the estimated individuals in the region (Refer to Table 7-24), which is not considered significant.

Other proposals will impact only one to five individuals of *Euphorbia inappendiculata* var. *queenslandica* (P3) and *Swainsona thompsoniana* (P3). The combined cumulative impacts on



these species represents 2.7% and 0.3%, respectively (Table 7-24) and is therefore not considered a significant regional impact.

The total clearing of 1,219 individuals of *Ptilotus mollis* (P3) represents 5.4% of the current estimated number of individuals (22,607 individuals) (Table 7-24). The cumulative impact on this species is not considered a significant impact in a regional context, given that this species is widespread in the Pilbara region, typically growing on steep rocky slopes (ecologia, 2025a) and associated with *Acacia* and *Triodia* dominated plant communities (Hammer *et al.*, 2020), which are common plants in Pilbara (DPIRD, 2023). The combined direct impacts are not expected to increase the conservation status of the species or impact its long-term survival.

Cumulative impacts to flora and vegetation are typically predominantly associated by direct clearing footprints, with indirect effects (dust, weed spread, disease transfer and edge-related condition decline) generally localised and diminishing rapidly with distance. As discussed in Section 7.7.2, indirect impacts from the proposal are not anticipated to be significant and with standard good-practice controls outlined in the EMP (Appendix B) (e.g. defined access, hygiene/clean-down, dust suppression, drainage/erosion controls and weed monitoring) the likelihood and magnitude of indirect pathways will be minimised such that no measurable change in vegetation condition or important flora habitat quality is anticipated. Given the spatial separation from other foreseeable surrounding proposals and the absence of mechanisms for a material hydrological or chronic disturbance change at recorded flora and native vegetation, indirect cumulative impacts are unlikely to be significant. The indirect cumulative impacts are not anticipated to reduce the species' extent of occurrence/area of occupancy, fragment populations, or disrupt key processes (pollination, seed set, dispersal) through vegetation degradation.

7.8 Environmental Outcomes

Table 7-26 summarises the expected environmental outcomes for the Proposal, following the implementation of mitigation and management measures. The environmental outcomes proposed are mainly outcome-based conditions. However, environmental objectives are proposed in some cases as there are several factors outside Fortescue's control that will influence an outcome. These cases require an assessment from a subject matter expert to assess whether the objectives are achieved.



Table 7-26: Summary of Residual Impacts for Flora and Vegetation after Mitigation Measures

Potential impact	Residual impact after management	Residual impact significance	Proposed Environmental Outcomes
Clearing of native vegetation	Clearing of 881.32 ha with 'Good to Excellent' condition.	<p>Potential Significant Residual Impact</p> <p>Vegetation types and vegetation associations, as per Beard (1975), will not be cleared to an extent to reduce the remaining vegetation below 30%. However, the permanent loss of 'Good to Excellent' vegetation condition is expected to be significant.</p> <p>An environmental offset is proposed for this residual impact.</p>	<p>FV-1 Environmental Outcome:</p> <p>Clearing no more than 910.26 ha of native vegetation (including 881.32 ha of 'Good to Excellent') within DE, of which no less than 480.81 ha will be rehabilitated.</p> <p>Management of potential impacts from clearing of native vegetation can be regulated under Part V of the EP Act.</p>
Clearing of conservation significant vegetation	<p>176.04 ha of Regionally Significant vegetation will be cleared, including:</p> <ul style="list-style-type: none"> 76.65 ha of 'Four plant assemblages of the Wona Land System' PEC (P1), and 9.61 ha of Potential 'Four plant assemblages of the Wona Land System' PEC (P1). Groundwater dependent vegetation: 3.1 ha. Potential groundwater dependent vegetation: 4.2 ha. 	<p>Not a Significant Residual Impact</p> <p>The total clearing represents 1.01% of the mapped Vegetation Types within the DE, including:</p> <ul style="list-style-type: none"> 1.47% of the 'Four plant assemblages of the Wona Land System' PEC (P1, P3) within the DE, and 0.6% of the Potential 'Four plant assemblages of the Wona Land System' PEC. <p>Given that the 'Four plant assemblages of the Wona Land System' PEC (P1) is well represented within the DE and surrounding areas and more than 98% of the extent of the PEC within the DE will remain, it is not expected to have a significant residual impact.</p>	<p>FV-2 Environmental Outcome:</p> <p>The implementation of the proposal will not result in the change of conservation status of identified conservation significant vegetation. Including:</p> <ul style="list-style-type: none"> Direct disturbance of no more than 76.65 ha of 'Four plant assemblages of the Wona Land System' PEC (P1), Direct disturbance of no more than 9.61 ha of potential 'Four plant assemblages of the Wona Land System' PEC (P1), Direct disturbance of no more than 3.13 ha of groundwater dependent vegetation, Direct disturbance of no more than 4.20 ha of potential groundwater dependent vegetation,



Potential impact	Residual impact after management	Residual impact significance	Proposed Environmental Outcomes
	<ul style="list-style-type: none"> • 82.48 ha of habitat for Priority flora species within four vegetation types: <ul style="list-style-type: none"> ○ 22.62 ha of Area 1 (VfAI), ○ 8.19 ha of Area 3 (VfAI), ○ 47.02 ha of Area 4 (EIAbTI), and ○ 4.64 ha of Area 5 (EIGwTe). 	<p>Not a Significant Residual Impact The clearing of GDV represents 0.11% of this vegetation type within the DE. Therefore, it is not expected to be a significant residual impact.</p> <hr/> <p>Not a Significant Residual Impact The clearing of potential GDV represents 0.28% of this vegetation type within the DE. Therefore, it is not expected to be a significant residual impact.</p> <hr/> <p>Not a Significant Residual Impact The clearing of Priority flora species habitat represents a maximum of:</p> <ul style="list-style-type: none"> • 5.21 % of Area 1 (VfAI), • 2.06% of Area 3 (VfAI),VfAI) • 1.97% of Area 4 (EIAbTI), • 3.69% of Area 5 (EIGwTe), and <p>Given the small-scale of impacts, compared with the total area of the Area, it is unlikely to represent a significant residual impact for Priority flora species habitat.</p>	<ul style="list-style-type: none"> • Direct disturbance of no more than 82.47 ha of habitat for significant Priority flora species , including: <ul style="list-style-type: none"> ○ 22.62 ha of Area 1 (VfAI), ○ No disturbance of Area 2 (VfAI) ○ 8.19 ha of Area 3 (VfAI), ○ 47.02 ha of Area 4 (EIAbTI), ○ 4.64 ha of Area 5 (EIGwTe), and ○ No disturbance of Area 6 (VfAI)



Potential impact	Residual impact after management	Residual impact significance	Proposed Environmental Outcomes
Clearing of conservation significant flora species	Clearing of seven conservation significant flora species, including: <ul style="list-style-type: none"> • <i>Paspalidium retiglume</i> (P2): 1 individual, • <i>Neptunia longipila</i> (P3): 10 individuals, • <i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3): 23 individuals, • <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3): 72 individuals, • <i>Iotasperma sessilifolium</i> (P3): 1 individual, • <i>Swainsona thompsoniana</i> (P3): 18 individuals, and • <i>Ptilotus mollis</i> (P4): 35 individuals. 	<p>Not a Significant Residual Impact</p> <p>The clearing of 23 individuals of <i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3) represents 3.07% of the total individuals within the DE and 3.06% of the total individuals within a 50 km buffer. Following the proposed clearing, 727 individuals will remain within the DE. As more than 96% of recorded individuals within the DE and within 50 km buffer will remain, it is unlikely that the proposed clearing will impact the survival of the species at either a local or species level. The impact to <i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3) is therefore not considered significant.</p>	<p>FV-3 Environmental Outcome:</p> <p>No direct or indirect disturbance to the Threatened flora species <i>Quoya zonalis</i>.</p> <p>FV-4 Environmental Outcome:</p> <p>The implementation of the proposal will not result in the change of conservation status of identified conservation significant flora species. Including:</p> <ul style="list-style-type: none"> • No more than 0.4% of <i>Paspalidium retiglume</i> (P2) will be cleared, • No more than 5.3% of <i>Neptunia longipila</i> (P3) will be cleared, • No more than 3.1% of <i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3) will be cleared, • No more than 4.0% of <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3) will be cleared, • No more than 20% of <i>Iotasperma sessilifolium</i> (P3) will be cleared, • No more than 2.0% of <i>Swainsona thompsoniana</i> (P3) will be cleared, • No more than 0.5% of <i>Ptilotus mollis</i> (P4) will be cleared, <p>Note: Percentages are based on recorded individuals within a 50 km buffer.</p>
		<p>Not a Significant Residual Impact</p> <p>The direct clearing of 72 individuals of <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3) represents 3.64% of the individuals within DE and 3.57 % of individuals within 50 km buffer. Following the proposed clearing, 1,905 individuals will remain within the DE. As more than 96% of recorded individuals within the DE and within 50 km buffer will remain, it is unlikely that the proposed clearing will impact the survival of the species at either a local or species level. The impact to <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3) is therefore not considered significant.</p>	
		<p>Not a Significant Residual Impact</p> <p>The direct clearing of one individual of <i>Iotasperma sessilifolium</i> (P3) represents 100% of the individuals within the DE and 20% of</p>	



Potential impact	Residual impact after management	Residual impact significance	Proposed Environmental Outcomes
		<p>occurrences within 50 km buffer. Previous records in the WA Herbarium (2025) database occurred back to 1995, 2005 and 2008, while ALA records were mostly documented between 1970 and 2018. Since then, only three occurrences have been reported, two of which within Pilbara, suggesting that further surveys are necessary. Additionally, a single occurrence of one individual does not constitute a viable population and is unlikely to impact the survival of the species at either a local or species level.</p> <p>Not a Significant Residual Impact</p> <p>The direct clearing of 10 individuals of <i>Neptunia longipila</i> (P3) represents 5.29% of the total individuals within the DE. There are no previous records of this species within the 50 km buffer outside the DE. The nearest known occurrence from the 10 individuals proposed to be cleared is 650 m away, suggesting these are separate sub-populations with no or limited connectivity.</p> <p>Following the proposed clearing, 179 individuals will remain within the DE. As more than 94% of recorded individuals within the DE and within 50 km buffer will remain, it is unlikely that the proposed clearing will impact the survival of the species at either a local or species level. The impact to <i>Neptunia longipila</i> (P3) is therefore not considered significant.</p> <p>Not a Significant Residual Impact</p> <p>The direct clearing of one occurrence (one individual) of <i>Paspalidium retiglume</i> (P2) represents 0.39% of the total individuals within the DE and 0.38% of the total individuals within</p>	



Potential impact	Residual impact after management	Residual impact significance	Proposed Environmental Outcomes
		<p>50 km buffer. The nearest occurrence is 2 km away within the DE, indicating no connectivity between them. Following the proposed clearing, 258 individuals will remain within the DE. As more than 99% of the recorded individuals within the DE and 50 km buffer will remain, clearing of one individual of the species is not considered significant.</p> <p>Not a Significant Residual Impact</p> <p>The direct clearing of 18 individuals of <i>Swainsona thompsoniana</i> (P3) represents 1.84% of individuals within the DE and 1.79 % of individuals within 50 km buffer. The occurrences are in close proximity to others (approximately 300 m) suggesting these individuals are likely are of the same sub-population. Following implementation of the Proposal, 959 individuals will remain within the DE. As more than 98% of recorded individuals within the DE and 99% of individuals within 50 km buffer will remain, it is unlikely that the proposed clearing will impact the survival of the species at either a local or species level.</p> <p>Not a Significant Residual Impact</p> <p>The direct clearing of 35 individuals of <i>Ptilotus mollis</i> (P4) represents 2.98% of individuals within the DE and 0.45% of individuals within 50 km buffer. The closest occurrence is 9 km away, indicating no connectivity between these occurrences. Following the proposed clearing, 1,139 individuals will remain within the DE. As more than 97% of recorded individuals within the DE and 99% of individuals within 50 km buffer will</p>	



Potential impact	Residual impact after management	Residual impact significance	Proposed Environmental Outcomes
		remain, it is unlikely that the proposed clearing will impact the survival of the species at either a local or species level. The impact to <i>Ptilotus mollis</i> (P4) is therefore not considered significant.	
Fragmentation of Sub-populations	The Proposal IDF will intersect occurrences of conservation significant flora species. However, it will not increase the distance between occurrences by more than 500 m, thereby dividing sub-populations. Additionally, it is not expected that the Proposal infrastructure will interfere with dispersal or pollination of these species.	<p>Not a Significant Residual Impact</p> <p>The clearing associated with the linear elements of the Proposal infrastructure will be up to approximately 50 m wide, it is unlikely this would act as a barrier to dispersal and/or pollination of these species within the DE, particularly where pollination is via wind or birds.</p>	
Edge effects on Conservation Significant Flora species	<p>The Proposal may indirectly impact three conservation-significant species in the absence of appropriate mitigation measures:</p> <ul style="list-style-type: none"> • <i>Paspalidium retiglume</i> (P2): 100 individuals, • <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i> (P3): 180 individuals, and • <i>Ptilotus mollis</i> (P4): 105 individuals 	<p>Residual Impact Unlikely</p> <p>Even in the worst-case scenario, the potential loss of individuals would not represent an impact that could affect the survival of the species at either a local or species level, given that the edge effects on those populations will not fragment populations or remove individuals or habitat to an extent that the species is unlikely to survive.</p>	
Introduction and/or spread of weed species	With the implementation of mitigation measures, the introduction and/or spread of weed species is not expected.	<p>Residual Impact Unlikely</p> <p>After the implementation of mitigation measures, is not expected that the introduction and/or</p>	<p>FV-5 Environmental Objective:</p> <p>Implementation of the Environmental Management Plan monitor and minimise impacts on flora or vegetation from</p>



Potential impact	Residual impact after management	Residual impact significance	Proposed Environmental Outcomes
		spread of weed species will result in a significant residual impact.	dust, weed spread, or changes to natural fire patterns when compared with existing environmental conditions. Management of potential impacts from weeds can also be regulated under the Mining Act.
Edge effects on Priority Ecological Community	As a result of the fragmentation of PEC patches and potential edge effects, 230.60 ha of VfAI may be indirectly impacted by the Proposal, including: <ul style="list-style-type: none"> 205.08 ha of 'Four plant assemblages of the Wona Land system' PEC (P1, P3), and 25.52 ha of potential 'Four plant assemblages of the Wona Land system' PEC (P1, P3). 	Not a Significant Residual Impact The Proposal has the potential to indirectly impact up to 230.60 ha of VfAI. In a worst-case scenario — assuming the complete loss of this PEC and including the permanent clearing of 47.94 ha for the Proposal — this would represent 278.54 ha, or approximately 1.11% of the current extent of this PEC within a 50 km buffer of the DE. Therefore, a significant residual impact is not expected.	As per FV-2 Environmental Outcome
Indirect impacts on Groundwater Dependent Vegetation	As a result of the Proposal design, hydrological patterns within the area will not be altered.	Not a Significant Residual Impact At a regional scale, the residual impact to groundwater dependent vegetation is not expected to be significant.	N/A
Dust deposition	As a result of the implementation of standard dust management practices, indirect impacts to vegetation are not anticipated.	Residual Impact Unlikely As a result of the implementation of standard dust management practices, dust deposition is unlikely to be a significant residual impact.	FV-5 Environmental Objective Management of potential impacts from dust can also be regulated under the Mining Act.
Increased risk of bushfires	As a result of the implementation of standard fire risk management practices, indirect impacts to vegetation are not expected.	Not a Significant Residual Impact At a regional scale, the impact on the vegetation is not expected to be significant.	FV-5 Environmental Objective Management of potential impacts from bushfire can also be regulated under the Mining Act.



The avoidance and minimisation measures detailed in this ERD, together with rehabilitation of temporary cleared areas and offsetting of significant residual impacts will result in the biological diversity and ecological integrity of the DE being maintained. The Proposal is consistent with the EPA's environmental objective for Flora and Vegetation (EPA, 2016a). Details of the proposed offsets are summarised in Chapter 12 (Offsets).



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8 TERRESTRIAL FAUNA

8.1 EPA Objective

The WA EPA objective for the terrestrial fauna environmental factor is '*To protect terrestrial fauna so that biological diversity and ecological integrity are maintained*' (EPA, 2016c). The WA EPA defines terrestrial fauna as '*animals living on land or using land (including aquatic systems) for all or part of their lives*' (EPA, 2016c).

8.2 Policy and Guidance

The following WA government agency policies and guidelines have been considered for the Proposal to meet the EPA's objective in relation to this factor:

- Statement of Environmental Principles, Factors and Objectives (EPA, 2023b),
- Environmental Factor Guideline – Terrestrial Fauna (EPA, 2016c),
- EPA Strategic Advice for Cumulative Environmental Impacts of Development in the Pilbara Region (EPA, 2014),
- Technical Guidance - Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020),
- Guidelines for Determining the Likely Presence and Habitat Usage of Night Parrot (*Pezoporus occidentalis*) in Western Australia (DBCA, 2024f),
- Guidelines for Surveys to Detect the Presence of Bilbies and Assess the Importance of Habitat in WA (DBCA, 2017), and
- Technical Guidance – Sampling of Short-Range Endemic Invertebrate Fauna (EPA, 2016d).

In addition, Commonwealth policies and guidelines have been considered for the Proposal including:

- EPBC Act Referral Guideline for the Endangered Northern Quoll *Dasyurus hallucatus*: EPBC Act Policy Statement (DoE, 2016),
- Survey Guidelines for Australia's Threatened Mammals: Guidelines for Detecting Mammals Listed as Threatened under the EPBC Act (DSEWPC, 2011a),
- Survey Guidelines for Australia's Threatened Birds: Guidelines for Detecting Birds listed as Threatened under the EPBC act (DEWHA, 2010a),
- Survey Guidelines for Australia's Threatened Reptiles: Guidelines for Detecting Reptiles listed as Threatened under the EPBC Act (DSEWPC, 2011b),
- Survey Guidelines for Australia's Threatened Bats: Guidelines for Detecting Bats listed as Threatened under the EPBC Act (DEWHA, 2010b),



- Onshore Wind Farm Guidance: Best practice approaches when seeking approval under Australia’s national environmental law (DCCEEW, 2024a), and
- Relevant Commonwealth Recovery Plans, Conservation Advice and/or Threat Abatement Plans, including:
 - Conservation Advice for the Grey Falcon (*Falco hypoleucos*) (TSSC, 2020),
 - Conservation Advice for the Northern Quoll (*Dasyurus hallucatus*) (TSSC, 2005),
 - National Recovery Plan for the Northern Quoll *Dasyurus hallucatus* (Hill & Ward, 2012),
 - Conservation Advice for the Ghost Bat (*Macroderma gigas*) (TSSC, 2016a),
 - Conservation Advice for the Greater Bilby (*Macrotis lagotis*) (TSSC, 2016b),
 - Conservation Advice for the Pilbara Leaf-nosed Bat (*Rhinonictis aurantia* (Pilbara Form)) (TSSC, 2016c).,
 - Conservation Advice for the Olive Python (Pilbara subspecies) (*Liasis olivaceus barroni*) (DEWHA, 2008a),
 - Conservation Advice for *Rostratula australis* (Australian Painted Snipe) (DSEWPaC, 2013),
 - Conservation Advice for the Common Greenshank (*Tringa nebularia*) (DCCEEW, 2024b), and
 - Conservation Advice for the Sharp-tailed Sandpiper (*Calidris acuminata*) (DCCEEW, 2024c).

Fauna surveys for the Proposal have been planned and executed in accordance with the EPA’s technical guidance for the terrestrial fauna factor.

8.3 Studies and Surveys

8.3.1 Terrestrial Vertebrate Fauna

Detailed and targeted terrestrial vertebrate fauna surveys were completed for the Proposal within Bonney Downs North (ecologia, 2024a) and Bonney Downs South (Spectrum Ecology, 2024). Fortescue engaged ecologia Environment (ecologia) to consolidate the results of these assessments into a single report that covers the entire Bonney Downs Wind Generation Project (‘the Survey Area’) (ecologia, 2025b); IBSA number is IBSA-2025-0267, provided in Appendix F. The Survey Area comprises approximately 102,802.56 ha, which encompasses the entire extent of the DE. This Survey Area is shown within Appendix F (referred to as ‘Study Area’ in the report). The ecologia (2025b) report also incorporates the first year of Bird and Bat Site Utilisation Surveys by ecologia (2026) (described in Section 8.3.2) where relevant.

The timing of the two detailed fauna assessments undertaken within the Survey Area is summarised in Table 8-1.



All surveys used a variety of sampling techniques, including systematic, targeted and opportunistic methodologies. All surveys were in accordance with the *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA, 2020).



Table 8-1: Terrestrial Fauna Studies and Surveys

Report	Survey Timing	Survey Effort
Multi-phase detailed fauna survey		
<p>Bonney Downs North: Terrestrial Fauna Assessment (ecologia, 2024a); incorporated into IBSA-2025-0267.</p>	<p>Phase 1: 22 May – 2 June 2023. Phase 2: 9 – 19 October 2023. Phase 3: 16 – 28 March 2024. Targeted: 24 July – 2 August 2024.</p>	<ul style="list-style-type: none"> • Systematic trapping (pit, cage, Elliot and funnel): 9,260 trap nights (23 sites). • Camera traps: 2,274 recording nights (64 cameras). • Avifauna surveys: 123 hours. • Active searches: 94 hours. • Night Parrot Autonomous recording units (ARU) (acoustic): 60 recording nights (nine sites). • ARU (ultrasonic): 119 recording nights (41 sites). • Spotlighting: 76 hours. • Ghost Bat lure: Seven nights (Seven sites). • Targeted searches: Falcons (134 hours); Northern Quolls and Bats (64 hours).
<p>Bonney Downs South: Terrestrial Fauna Assessment (Spectrum Ecology, 2024); incorporated into IBSA-2025-0267.</p>	<p>Phase 1: 13 – 25 October 2023. Phase 2: 4 – 14 April 2024. Targeted camera installations: 26 – 28 April 2024.</p>	<ul style="list-style-type: none"> • Systematic trapping (pit, cage, Elliot and funnel): 4,630 trap nights (11 sites) • Targeted cage/Elliot traps: 790 trap nights (Elliot) and 224 trap nights (cage) • Camera traps: 1,610 recording nights (37 cameras) • Avifauna surveys: 57 hours • Active searches: 34 hours • Night Parrot ARU (acoustic): 38 recording nights (six sites) • ARU (ultrasonic): 40 recording nights (17 sites) • Spotlighting: 23.2 hours • Targeted searches: Grey Falcon (21 hours); Migratory Birds (8 hours); Olive Python (20 hours); Bilby (8 hours).



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8.3.2 Bird and Bat Site Utilisation Surveys

Fortescue commissioned ecologia (2026) to undertake 24 months of Bird and Bat Site Utilisation Surveys (BBSUS) within the Survey Area, the IBSA number for this survey is ISA-0001216. Timing of the BBSUS was designed to coincide with seasonal variation in the Pilbara region, with surveys undertaken in summer (December-February), autumn (March-May), winter (June-August) and spring (September-November) each year. All eight bird and bat site utilisation surveys have been completed approximately every three months between October 2023 and August 2025 (ecologia 2026):

- Spring southward migration: 12 – 19 October 2023,
- Summer wet season: 5 – 12 February 2024,
- Autumn northward migration: 21 – 28 March 2024,
- Winter dry season: 17 – 24 June 2024,
- Spring southward migration (Year 2): 10 – 17 September 2024,
- Summer wet season (Year 2): 10 – 12, 24 – 28 February 2025.
- Autumn northward migration (Year 2): 28 April – 5 May 2025, and
- Winter dry season (Year 2): 13 – 20 August 2025.

The BBSUS involved the following types of surveys:

- Fixed-point surveys: a total of 40 survey sites were established across the Survey Area to record avifauna and bat species present and understand how each species is utilising the site,
- Incidental records: incidental observations of species of concern were recorded while traversing the Survey Area,
- Autonomous recording units to record bat echolocation calls were deployed at each of the 40 fixed-point survey sites,
- Acoustic recording units to record Night Parrot calls were deployed at nine sites in prospective Night Parrot habitat,
- Targeted searches for the Grey Falcon and Peregrine Falcon were undertaken by walking transects within their preferred habitat types, and
- Ghost Bat acoustic lures were deployed at seven locations in the north of the Survey Area.

The site selection for the surveys was based on habitat types derived from land systems and aerial photography (site locations are shown in Figure 8-1). Habitat features known to provide shelter and foraging opportunities for significant fauna species (e.g. creek lines and ridgelines) were preferentially targeted.



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- Legend**
- | | |
|---|--|
| ▭ Development Envelope | ● Drainage Line/River/Creek (major) |
| ★ GOV Towns | ● Drainage Line/River/Creek (minor) |
| — Major Roads | ● Hills/Ranges/Plateaux |
| — Fortescue Rail | ● Plain (Cracking clays) |
| — Roy Hill Rail | ● Plain (stony/gibber) |
| ● Turbine Locations | ● Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways) |
| ▭ Indicative Disturbance Footprint | ● Woodland (open) |
| ▭ Approved Disturbance Footprint (Nullagine Pilot Wind Farm) | ○ Cleared |

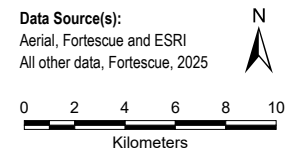


Figure 8-1
 Bird and Bat Survey
 Site Locations

Requested By: R. Dorji
 Drawn By: R. Kerr
 Revised By: rykerr
 Approved By:
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_017_r1_Bird_Bat

Date: 1/28/2026
 Size: A4L
 Revision: 1
 Confidentiality: 0

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8.3.3 Short-Range Endemic Terrestrial Invertebrate Survey

Fortescue commissioned the Harry Butler Institute (HBI) Murdoch University to undertake a detailed Short-Range Endemic (SRE) terrestrial invertebrate survey for the Proposal (IBSA number IBSA-0001135) provided in Appendix G. The SRE Survey Area covered an area of approximately 102,943 ha, beyond the DE boundary ('SRE Survey Area'). The objective of the survey was to define the value of the SRE Survey Area with respect to terrestrial SREs and their habitats.

The SRE assessment included a desktop review and a two-phase field survey using standard SRE collecting techniques (foraging, leaf litter sifting and Winkler sack litter extractions). The two-phase field survey was undertaken between 12-21 February and between 4-15 April 2024 at 28 sites (Figure 8-2). All species and morphospecies determinations were derived from both morphological and molecular data: DNA barcoding with DNA sequence of the barcoding gene COI (Cytochrome C oxidase subunit I).

The assessment was conducted in accordance with the EPA's *Technical Guidance: Sampling of Short-Range Endemic invertebrate fauna* (EPA, 2016) and *Environmental Factor Guideline: Terrestrial Fauna* (EPA, 2016) and internal Fortescue standards.

The SRE assessment (HBI, 2024) is provided in Appendix G.



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Legend

Development Envelope	Drainage Line/River/Creek (major)
GOV Towns	Drainage Line/River/Creek (minor)
Major Roads	Gorges/Gullies
Fortescue Rail	Granite Outcrops (flat dome)
Roy Hill Rail	Hills/Ranges/Plateaux
Indicative Disturbance Footprint	Plain (Cracking clays)
Approved Disturbance (Nullagine Pilot Wind Farm)	Plain (stony/gibber)
Sampling Sites	Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways)
Fauna Habitats: Cleared	Woodland (closed)
Fauna Habitats: Woodland (open)	

Data Source(s):
 Aerial, Fortescue and ESRI
 All other data, Fortescue, 2025

N

0 2 4 6 8 10
 Kilometers

Figure 8-2
 Short-range Endemics (SRE)
 Sampling Sites

Requested By: R. Dorji	Date: 1/28/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 1
Approved By:	Confidentiality: 0
Scale: 1:300,000	
Coordinate System: GDA 1994 MGA Zone 50	
Project Name: 4519OP002_MP_EN_0093_PartIV_2	
Document Name: 4519OP002_MP_EN_0093_018_r1_SRE	

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8.3.4 Limitations

All limitations associated with the Terrestrial Fauna Surveys, SRE Surveys, and Bird and Bat Site Utilisation Surveys are reported in Appendix F (ecologia, 2025b), Appendix G (HBI, 2024), and Appendix H (ecologia, 2026) respectively. No significant limitations were identified during the surveys.

8.4 Receiving Environment

8.4.1 Terrestrial Vertebrate Fauna

8.4.1.1 Fauna Habitats

Ecologia (2025b) mapped 10 broad fauna habitat types within the DE (excluding cleared areas). Fauna habitats were described as an area which is distinguishable from its surrounding area by its vegetation type, soil units and landforms present (ecologia, 2025b), which determine their ability to support specific fauna assemblages or significant fauna (EPA, 2020).

The majority of the DE was identified as plain (stony/gibber) habitat, representing 83.97% of the DE. This habitat was reported to be common and widespread in the Pilbara region. The granite outcrops (flat dome) habitat was reported to be restricted within the DE and within the broader region, this habitat comprises 0.01% of the DE. All other habitats were reported as common and widespread in the Pilbara. An additional 0.94% of the DE was reported as cleared, lacking suitable habitat for terrestrial vertebrate fauna.

The ecologia (2025b) report defines the condition of most of the habitat types within the DE as ranging from 'Degraded' to 'Excellent' (ecologia, 2025b). Where the ecologia (2025b) report did not note the habitat condition, a conservative approach has been adopted, and the condition has been described as 'Excellent'.

Table 8-2 describes the mapped habitat types found in the DE, the significant fauna likely to be associated with each habitat and the extent of each habitat type in the DE. The fauna habitat mapping is displayed in Figure 8-3.



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Table 8-2: Fauna Habitats in the Development Envelope and BC Act Listed Fauna Associations (ecologia, 2025b)

Habitat / description	Significant fauna association with habitat*	Total within DE (ha)	Proportion within DE (%)
<p>Woodland (open) Habitat characterised by open <i>Acacia aptaneura</i> (mulga) woodland over scattered mixed shrubs over scattered tussock grassland and herblands on red soil, sandy loam plains and stony substrates. Habitat condition: Excellent</p>	<p>Supporting habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (hunting), • Ghost Bat – VU (foraging), • Pilbara Leaf-nosed Bat (PLNB) – VU (foraging), • Peregrine Falcon – OS (foraging), and • Oriental Plover – MI (dispersal and foraging). 	574.28	0.64
<p>Woodland (closed) Habitat characterised by dense <i>Acacia aptaneura</i> (mulga) woodland over scattered mixed shrubs over scattered tussock grassland and herblands on red soil, sandy loam plains and stony substrates. Habitat condition: Excellent</p>	<p>Supporting habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (hunting), • Ghost Bat – VU (foraging), • PLNB – VU (foraging), • Peregrine Falcon – OS (foraging), and • Oriental Plover – MI (dispersal and foraging). 	392.02	0.44
<p>Granite outcrops (flat dome) Exposed boulder piles and domes with sparse vegetation limited to scattered soft grasses such as <i>Triodia</i> sp. hummocks. Substrate is sandy with no leaf or wood litter. Habitat condition: Excellent</p>	<p>Supporting habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (hunting), • Northern Quoll – EN (dispersal and foraging) in southern portion of DE only, • Ghost Bat – VU (foraging), • PLNB – VU (foraging), • Peregrine Falcon – OS (foraging), • Long-tailed Dunnart – P4 (shelter, foraging, dispersal), and • Oriental Plover – MI (dispersal and foraging). 	12.48	0.01
<p>Plain (stony/gibber) Habitat characterised as stony or stony sand on flat plains. Vegetation is generally sparse with a very sparse mid story of mixed shrubs over variable density of hummock grassland</p>	<p>Critical habitat:</p> <ul style="list-style-type: none"> • Night Parrot – CR (roosting). <p>Supporting habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (hunting), 	75,547.94	83.97



Habitat / description	Significant fauna association with habitat*	Total within DE (ha)	Proportion within DE (%)
<p>(<i>Triodia</i> spp.). The coarse stony clay soils provide habitat for species that burrow.</p> <p>Habitat condition: Good – Excellent</p>	<ul style="list-style-type: none"> • Ghost Bat – VU (foraging), • PLNB – VU (foraging), • Peregrine Falcon – OS (foraging), • Brush-tailed Mulgara – P4 (burrowing), • Western Pebble-mound Mouse – P4 (mounds, foraging and dispersal), • Gane’s Blind Snake – P1, and • Oriental Plover – MI (dispersal and foraging). 		
<p>Plain (cracking clays)</p> <p>This habitat is characterised by basalt upland gilgai plains associated with the Wona Land System which supports scattered shrubs over grasses and herbs. It provides quality foraging for granivores.</p> <p>Habitat condition: Good - Excellent</p>	<p>Supporting habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (hunting), • Ghost Bat – VU (foraging), • PLNB – VU (foraging), • Peregrine Falcon – OS (foraging), • Short-tailed Mouse – P4 (shelter, foraging, dispersal), • Oriental Plover – MI (dispersal and foraging), and • Night Parrot – CR (foraging). 	5,366.12	5.96
<p>Hills/ranges/plateaux</p> <p>This habitat type consists of large ranges and hills associated with the Capricorn Land System with ridgelines and cliffs containing breakaways, boulders, crevices and caves.</p> <p>Habitat condition: Excellent</p>	<p>Critical habitat:</p> <ul style="list-style-type: none"> • Northern Quoll – EN (denning, shelter and foraging) in northern portion of DE only with critical supporting habitat within 1 km of this critical habitat, • Pilbara Olive Python – VU (shelter, foraging and dispersal), • Ghost Bat – VU (potential roosting), and • PLNB – VU (potential roosting). <p>Supporting habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (hunting), • Peregrine Falcon – OS (foraging), 	1,322.34	1.47



Habitat / description	Significant fauna association with habitat*	Total within DE (ha)	Proportion within DE (%)
	<ul style="list-style-type: none"> Western Pebble-mound Mouse – P4 (mounds, foraging and dispersal), Gane’s Blind Snake – P1, Long-tailed Dunnart – P4 (shelter, foraging, dispersal), and Oriental Plover – MI (dispersal and foraging). 		
<p>Gorges/gullies</p> <p>Habitat characterised by low open woodland dominated by <i>Acacia cyperophylla</i> var. <i>omearana</i> and <i>Corymbia candida</i> over tall, sparse shrubland (<i>Acacia tumida</i>, <i>Grevillea wickhamii</i> and <i>Santalum lanceolatum</i>) over mixed low sparse tussock/hummock grassland (<i>Triodia</i> and <i>Eriachne</i>).</p> <p>Habitat condition: Excellent</p>	<p>Critical habitat:</p> <ul style="list-style-type: none"> Northern Quoll – EN (denning, shelter and foraging) in northern portion of DE only with critical supporting habitat within 1 km of this critical habitat, Pilbara Olive Python – VU (shelter, foraging and dispersal), Ghost Bat – VU (potential roosting), and PLNB – VU (potential roosting). <p>Supporting habitat:</p> <ul style="list-style-type: none"> Northern Quoll – EN (dispersal and foraging) in southern portion of DE only, Grey Falcon – VU (hunting), Peregrine Falcon – OS (foraging), Long-tailed Dunnart – P4 (shelter, foraging, dispersal), Gane’s Blind Snake – P1, and Oriental Plover – MI (dispersal and foraging). 	41.51	0.05
<p>Rocky escarpments (ridges/ mesa/cliffs/outcrops/breakaways)</p> <p>Habitat characterised by mixed shrubland dominated by <i>Acacia</i> sp., <i>Senna</i> sp., <i>Hakea</i> sp., <i>Eremophila</i>, <i>Ptilotus obovatus</i>, <i>Paspalidium clementii</i> and <i>Solanum lasiophyllum</i> over hummock grassland of <i>Triodia</i> sp.</p> <p>Habitat condition: Excellent</p>	<p>Critical habitat:</p> <ul style="list-style-type: none"> Northern Quoll – EN (denning, shelter and foraging) in northern portion of DE only with critical supporting habitat within 1 km of this critical habitat, Pilbara Olive Python – VU (shelter, foraging and dispersal), PLNB – VU (potential roosting), 	2,123.25	2.36



Habitat / description	Significant fauna association with habitat*	Total within DE (ha)	Proportion within DE (%)
	<ul style="list-style-type: none"> • Ghost Bat – VU (potential roosting), and • Peregrine Falcon – OS (nesting and foraging). <p>Supporting habitat:</p> <ul style="list-style-type: none"> • Northern Quoll – EN (dispersal and foraging) in southern portion of DE only, • Grey Falcon – VU (hunting), • PLNB – VU (foraging and dispersal), • Western Pebble-mound Mouse – P4 (mounds, foraging and dispersal), • Long-tailed Dunnart – P4 (shelter, foraging, dispersal), and • Oriental Plover – MI (dispersal and foraging). 		
<p>Drainage line/river/creek (major) Open Eucalypt woodland over <i>Acacia coriacea</i> subsp. <i>pendens</i> over low tussock and hummock grassland, featuring deeply incised drainage channels with a higher density of vegetation than surrounding areas. The scattered trees and shrubs in this habitat type provide habitat for birds and shelter for species using this habitat for dispersal.</p> <p>Habitat condition: Degraded - Good</p>	<p>Critical habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (nesting), • Pilbara Olive Python – VU (shelter, foraging and dispersal), • PLNB – VU (foraging), • Ghost Bat – VU (foraging), and • Peregrine Falcon – OS (nesting and foraging). <p>Supporting habitat:</p> <ul style="list-style-type: none"> • Northern Quoll – EN (dispersal and foraging), • Australian Painted Snipe - EN (dispersal and foraging), • Common Greenshank – EN (dispersal and foraging), • Gane’s Blind Snake – P1, • Common Sandpiper – MI (dispersal and foraging), • Red-necked Stint – MI (dispersal and foraging), • Oriental Plover – MI (dispersal and foraging), • Gull-billed Tern – MI (dispersal and foraging), 	1,657.22	1.84

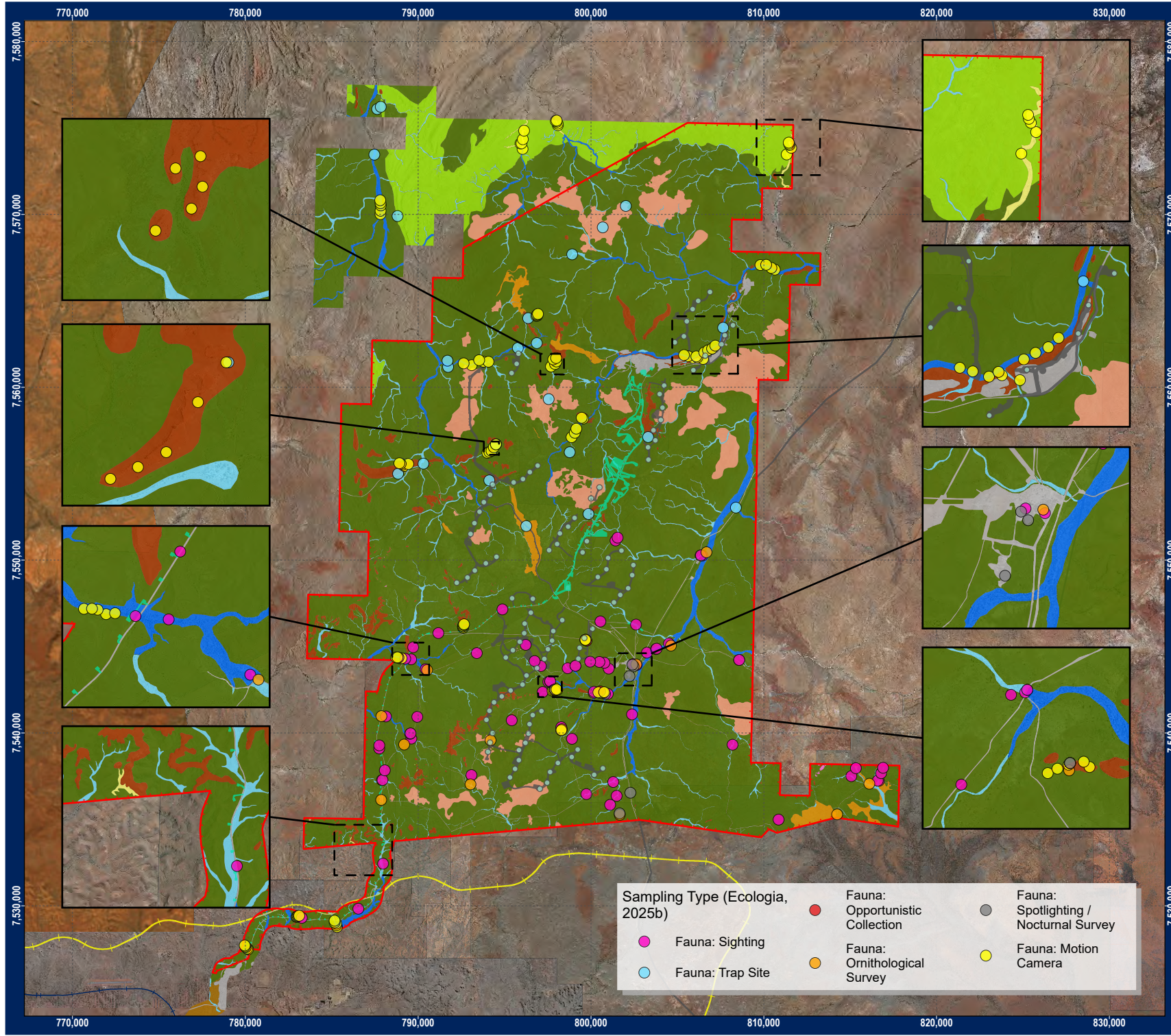


Habitat / description	Significant fauna association with habitat*	Total within DE (ha)	Proportion within DE (%)
	<ul style="list-style-type: none"> • Caspian Tern - MI (dispersal and foraging), • Glossy Ibis - MI (dispersal and foraging), • Wood Sandpiper - MI (dispersal and foraging), and • Marsh Sandpiper – MI (dispersal and foraging). 		
<p>Drainage line/river/creek (minor) This habitat features shallow incised drainage channels and a higher density of vegetation than surrounding areas. Substrates of gravelly, sand or rocks on clay/loam soils supports scattered trees and shrubs. Habitat condition: Poor</p>	<p>Supporting habitat:</p> <ul style="list-style-type: none"> • Grey Falcon – VU (hunting), • Ghost Bat – VU (foraging), • PLNB – VU (foraging), • Peregrine Falcon – OS (foraging), • Short-tailed Mouse – P4 (shelter, foraging, dispersal), and • Oriental Plover – MI (dispersal and foraging). 	2,092.13	2.33
<p>Cleared Areas that have been previously cleared and contain little to no vegetation. These areas generally considered to provide no habitat value for fauna.</p>	-	844.56	0.94
Total	-	89,973.85	100

*Note the following conservation abbreviations are used: Vulnerable (VU), Endangered (EN), Other Specially Protected (OS), Critically Endangered (CR), Migratory (MI) and Priority 4 (P4).



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Legend

 Development Envelope	 Fauna Habitats
★ GOV Towns	 Cleared
— Major Roads	 Drainage Line/River/Creek (major)
— Fortescue Rail	 Drainage Line/River/Creek (minor)
— Roy Hill Rail	 Gorges/Gullies
○ Turbine Locations	 Granite Outcrops (flat dome)
■ Indicative Disturbance Footprint	 Hills/Ranges/Plateaux
■ Approved Disturbance (Nullagine Pilot Wind Farm)	 Plain (Cracking clays)
	 Plain (stony/gibber)
	 Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways)
	 Woodland (closed)
	 Woodland (open)

Data Source(s):
Aerial, Fortescue and ESRI
All other data, Fortescue, 2025

Scale: 1:300,000

Coordinate System: GDA 1994 MGA Zone 50
Project Name: 4519OP002_MP_EN_0093_PartIV_2
Document Name: 4519OP002_MP_EN_0093_019a_r1_Fauna_Habitats

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Sampling Type (Ecologia, 2025b)

● Fauna: Sighting	● Fauna: Opportunistic Collection	● Fauna: Spotlighting / Nocturnal Survey
● Fauna: Trap Site	● Fauna: Ornithological Survey	● Fauna: Motion Camera

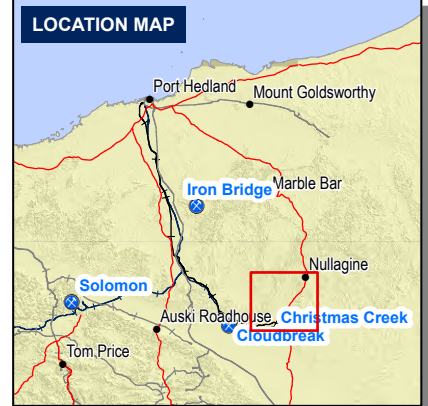
Figure 8-3-1
Fauna Habitats
within the Development Envelope

Requested By: R. Dorji Date: 1/28/2026
Drawn By: R. Kerr Size: A4L
Revised By: rykerr Revision: 1
Approved By: Confidentiality: 0
Scale: 1:300,000

Fortescue



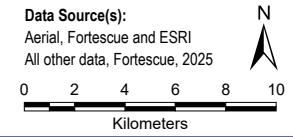
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Legend

- | | |
|--|--|
| Development Envelope | Fauna Habitats: Cleared |
| GOV Towns | Drainage Line/River/Creek (major) |
| Major Roads | Drainage Line/River/Creek (minor) |
| Fortescue Rail | Gorges/Gullies |
| Roy Hill Rail | Granite Outcrops (flat dome) |
| Turbine Locations | Hills/Ranges/Plateaux |
| Indicative Disturbance Footprint | Plain (Cracking clays) |
| Approved Disturbance (Nullagine Pilot Wind Farm) | Plain (stony/gibber) |
| Fauna: Habitat Assessment | Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways) |
| Fauna: Trap Site (Bucket) | Woodland (closed) |
| Fauna: Trap Site (Cage) | Woodland (open) |

Sampling Type (Ecologia, 2025b)



Data Source(s):
Aerial, Fortescue and ESRI
All other data, Fortescue, 2025

Figure 8-3-2
Fauna Habitats
within the Development Envelope

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000

Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_019d_r1_Fauna_Habitats
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Legend

Development Envelope	Fauna Habitats
GOV Towns	Cleared
Major Roads	Drainage Line/River/Creek (major)
Fortescue Rail	Drainage Line/River/Creek (minor)
Roy Hill Rail	Gorges/Gullies
Turbine Locations	Granite Outcrops (flat dome)
Indicative Disturbance Footprint	Hills/Ranges/Plateaux
Approved Disturbance (Nullagine Pilot Wind Farm)	Plain (Cracking clays)
Sampling Type (Ecologia, 2025b)	Plain (stony/gibber)
Fauna: Sound Recorder	Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways)
	Woodland (closed)
	Woodland (open)

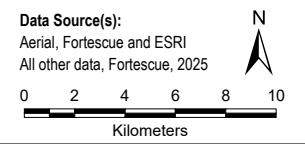


Figure 8-3-3
Fauna Habitats
 within the Development Envelope

Requested By: R. Dorji Date: 1/28/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000

Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_019e_r1_Fauna_Habitats

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8.4.1.2 Fauna Species

The consolidated terrestrial vertebrate fauna survey (ecologia, 2025b) determined the likelihood of occurrence of each species in the DE and surrounding area. In addition to the species recorded during the field surveys and the previously recorded species (desktop study), the likelihood of occurrence assessment also considered the known distribution of species' habitat, habitat preferences for each species and the proximity of known records. Table 8-3 shows the likelihood of occurrence criteria (ecologia, 2025b).

Table 8-3: Likelihood of Occurrence Criteria*

Criteria	Description
Recorded	The species has been recorded within the Survey Area previously or during the current survey.
High (likely to occur)	The species is likely to occur within the Survey Area as suitable habitat is known to be present and there are existing records very close to the Survey Area (within 5-15 km, depending on species mobility).
Moderate (possibly occurs)	The species may occur within the Survey Area as there are existing records in the vicinity of the Survey Area, and suitable habitat is likely to be present; OR The species may occur within the Survey Area as there is insufficient information available to exclude the possibility occurrence.
Low (unlikely to occur)	The species is unlikely to occur within the Survey Area as suitable habitat is not present or is not likely to be present; OR Suitable habitat is present within the Survey Area, but the taxon has not been recorded despite reasonable survey effort.
Does not occur	The species is recognised as being locally extinct or extinct in the wild and does not occur within the Survey Area; OR Records identified through database searches are associated with a listed subspecies which does not occur within the region.

*The species' biology, detectability and frequency of records are considered in the likelihood assessment (e.g. an elusive species that is very rarely recorded may be rated more likely to occur than a species that is easily detectable).

Eleven vertebrate species of significance were recorded (ecologia, 2025b; 2026) within the DE. Based on previous records from the Survey Area (as defined by ecologia, 2025b; 2026) and the likelihood of occurrence assessment (ecologia, 2025b), the following conservation significant species were recorded, or allocated a 'High' or 'Moderate' likelihood of occurrence within the DE.

Recorded within the DE:

- Northern Quoll (*Dasyurus hallucatus*) – Endangered under BC Act and EPBC Act,
- Ghost Bat (*Macroderma gigas*) – Vulnerable under BC Act and EPBC Act,
- Pilbara Leaf-nosed Bat (*Rhynonictis aurantia* (Pilbara form)) – Vulnerable under BC Act and EPBC Act,
- Grey Falcon (*Falco hypoleucos*) – Vulnerable under BC Act and EPBC Act,



- Pilbara Olive Python (*Liasis olivaceus barroni*) – Vulnerable under BC Act and EPBC Act,
- Gane’s Blind Snake (*Anilios ganei*) – Priority 1 listed by the Department of Biodiversity, Conservation and Attractions (DBCA),
- Brush-tailed Mulgara (*Dasycercus blythi*) – Priority 4 listed by DBCA,
- Western Pebble-mound Mouse (*Pseudomys chapmani*) – Priority 4 listed by DBCA, and
- Short-tailed Mouse (*Leggadina lakedownensis*) – Priority 4 listed by DBCA.
- Fork-tailed Swift (*Apus pacificus*) - Migratory under BC Act and EPBC Act,
- Oriental Plover (*Charadrius veredus*) – Migratory under BC Act and EPBC Act,

High Likelihood of Occurrence within the DE:

- Peregrine Falcon (*Falco peregrinus*) – Other Specially Protected under BC Act, and
- Long-tailed Dunnart (*Antechinomys longicaudata*) – Priority 4 listed by DBCA.

Moderate likelihood of occurrence within the DE:

- Night Parrot (*Pezoporus occidentalis*) – Critically Endangered under BC Act and Endangered under EPBC Act,
- Australian Painted Snipe (*Rostratula australis*) – Endangered under BC Act and EPBC Act,
- Common Greenshank (*Tringa nebularia*) – Endangered under BC Act and Endangered and Migratory under EPBC Act,
- Sharp-tailed Sandpiper (*Calidris acuminata*) – Migratory under BC Act and Vulnerable and Migratory EPBC Act,
- Common Sandpiper (*Actitis hypoleucos*) – Migratory under BC Act and EPBC Act,
- Red-necked Stint (*Calidris ruficollis*) – Migratory under BC Act and EPBC Act,
- Gull-billed Tern (*Gelochelidon nilotica*) – Migratory under BC Act and EPBC Act,
- Caspian Tern (*Hydroprogne caspia*) – Migratory under BC Act and EPBC Act,
- Glossy Ibis (*Plegadis falcinellus*) – Migratory under BC Act and EPBC Act,
- Wood Sandpiper (*Tringa glareola*) – Migratory under BC Act and EPBC Act, and
- Marsh Sandpiper (*Tringa stagnatilis*) – Migratory under BC Act and EPBC Act.



According to the DBCA database, there are two Bilby (*Macrotis lagotis*) records within the DE, however these are from 1982 and 1984. These records were not included in the Dziminski, Carpenter and Morris (2020) analysis of historical Bilby records, deeming them to be uncertain due to low location accuracy. No evidence of this species was recorded during the ecologia (2025b) survey. Most of the DE encompasses rocky habitats and plain (stony/gibber) habitat which lack suitable substrates and habitat for the Bilby (ecologia, 2025b). Given the uncertainty of the historical records, general lack of suitable habitat and absence of evidence to suggest that the species is occupying the DE, the Bilby is considered to have a low likelihood of occurrence.

Bird and Bat Site Utilisation Surveys

A total of 128 bird and bat taxa have been recorded in the Survey Area, including 123 records during the ecologia (2026) BBSUS (Appendix H), and five additional bird and bat taxa records from the ecologia (2025b) detailed and targeted terrestrial vertebrate fauna surveys. One species listed as Threatened under the BC Act was recorded during the BBSUS (ecologia, 2026); the Grey Falcon, which is described in Section 8.4.2.1.

Analysis of echolocation calls in the Survey Area identified the presence of at least 10 species of bat within the local area (ecologia, 2026). This included two species listed as Threatened under the BC Act; the Ghost Bat and the PLNB, which are described in Section 8.4.2.1.

The results of the BBSUS undertaken for the Proposal are outlined in Table 8-4.



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Table 8-4: Bird and Bat Utilisation Survey Results

Survey Date	Total Survey Effort – 4 Surveys	Results
12 – 19 October 2023 (spring)	<p>Overall</p> <ul style="list-style-type: none"> • Thirty-minute fixed-point avifauna surveys were conducted at 40 BBSUS sites. • A total of 960 surveys have been completed to date (120 per survey phase). • Each site was surveyed three times (morning, mid-day and evening) over an eight-day period by three zoologists across four seasons. <p>Bird</p> <ul style="list-style-type: none"> • 60 nights of targeted Night Parrot ARUs in potential Night Parrot habitat. • Incidental observations of species of concern and raptors were recorded while traversing the site. <p>Bat</p> <ul style="list-style-type: none"> • 306 hours of targeted searches (including Grey Falcon, Peregrine Falcon) and spotlighting for nocturnal species. <p>Bat</p> <ul style="list-style-type: none"> • ARUs at all BBSUS sites for minimum of two nights, resulting in 610 recording nights. • 34 additional bat detectors were placed on potential flight pathways. • Ghost Bat lures at seven locations during the March 2024 survey. 	<ul style="list-style-type: none"> • Total number of species observed: 67 <p>Conservation Significant Birds:</p> <ul style="list-style-type: none"> • 2 Grey Falcons were observed. <p>Conservation Significant Bats:</p> <ul style="list-style-type: none"> • Pilbara Leaf-nosed Bats recorded at four sites.
5 – 12 February 2024 (summer)		<ul style="list-style-type: none"> • Total number of species observed: 78 <p>Bird (conservation significant)</p> <ul style="list-style-type: none"> • 1 Grey Falcon observed. <p>Bat (conservation significant)</p> <ul style="list-style-type: none"> • Pilbara Leaf-nosed Bat recorded at three sites.
21 – 28 March 2024 (autumn)		<ul style="list-style-type: none"> • Total number of species observed: 76 • No Significant Bird Species recorded. <p>Conservation Significant Bats:</p> <ul style="list-style-type: none"> • 1 Ghost Bat recorded.
17 – 24 June 2024 (winter)		<ul style="list-style-type: none"> • Total number of species observed: 75 • No Significant Species recorded.
10 – 17 September 2024		<ul style="list-style-type: none"> • Total number of species recorded: 76 <p>Conservation Significant Birds:</p> <ul style="list-style-type: none"> • 1 Oriental Plover observed. <p>Conservation Significant Bats:</p> <ul style="list-style-type: none"> • PLNB recorded at 1 site.
10 -13, 24 - 28 February 2025		<ul style="list-style-type: none"> • Total number of species recorded: 83 <p>Conservation Significant Birds:</p> <ul style="list-style-type: none"> • 2 Grey Falcons observed. • 13 Pacific swift (fork-tailed swift) recorded.



Survey Date	Total Survey Effort – 4 Surveys	Results
		Conservation Significant Bats: <ul style="list-style-type: none"><li data-bbox="1464 344 1541 368">• No
28 April – 5 May 2025		• Total number of species recorded: 76 Conservation Significant Birds: <ul style="list-style-type: none"><li data-bbox="1464 467 1899 491">• No significant bird species recorded. Conservation Significant Bats: <ul style="list-style-type: none"><li data-bbox="1464 539 1787 563">• PLNB recorded at 6 sites.
13 – 20 August 2025		• Total number of species recorded: 82 Conservation Significant Birds: <ul style="list-style-type: none"><li data-bbox="1464 663 1899 687">• No significant bird species recorded. Conservation Significant Bats: <ul style="list-style-type: none"><li data-bbox="1464 735 1787 759">• PLNB recorded at 2 sites



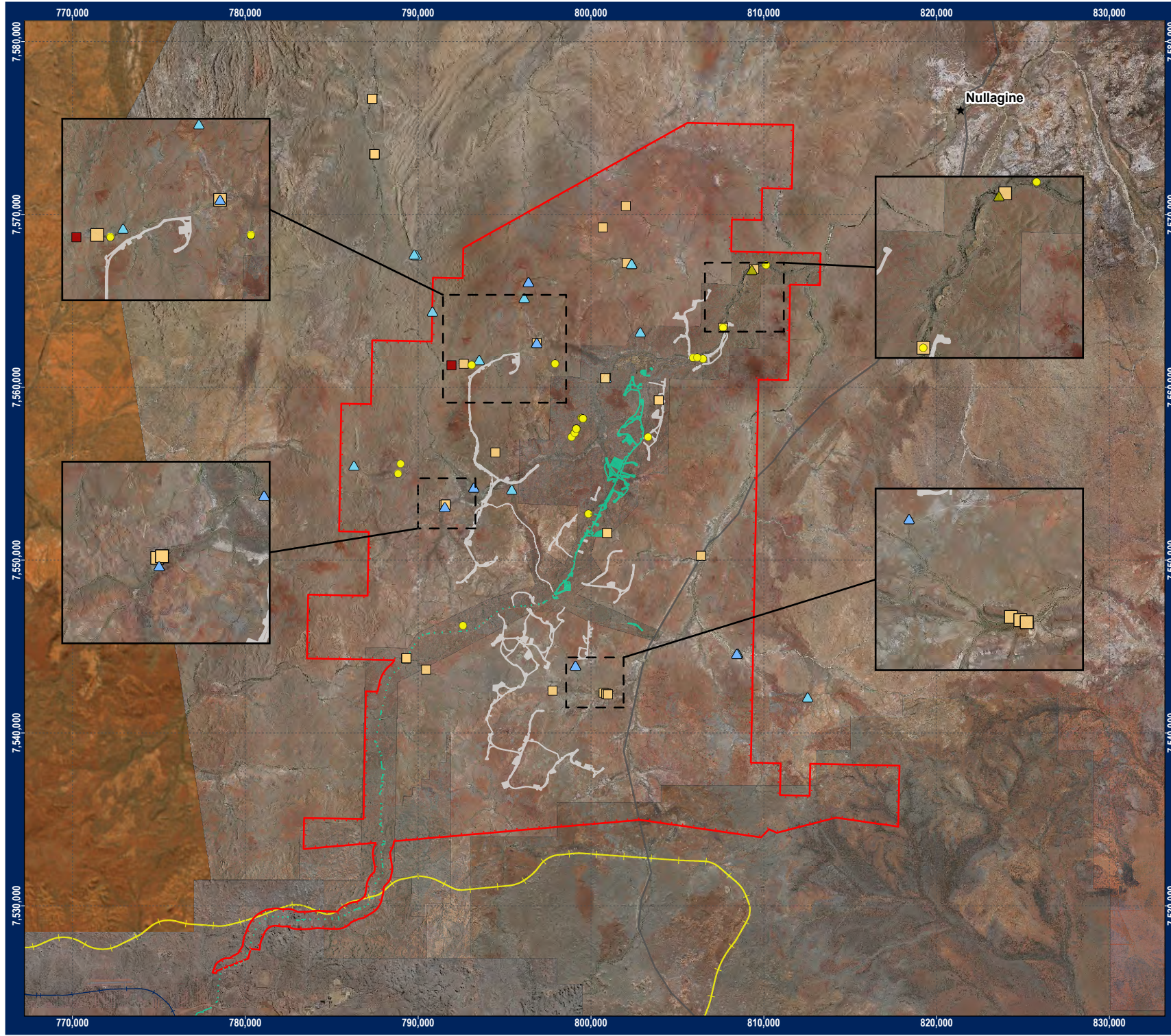
8.4.2 Conservation Significant Fauna

8.4.2.1 Threatened Fauna

Threatened fauna are legislatively protected under the BC Act and/or the EPBC Act and are allocated a conservation status ranging from Critically Endangered to Vulnerable. Threatened fauna recorded during the ecologia (2025b) survey, along with those identified post survey as having 'High' or 'Moderate' likelihood of occurrence within the DE are discussed in the context of potential habitat within the DE. Threatened fauna that are also considered Migratory species are discussed in section 8.4.5. Records of conservation significant fauna species within, or in close proximity to the DE are shown in Figure 8-4.



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- Legend**
- ▭ Development Envelope
 - ★ GOV Towns
 - Major Roads
 - Fortescue Rail
 - Roy Hill Rail
 - ▭ Indicative Disturbance Footprint
 - ▭ Approved Disturbance (Nullagine Pilot Wind Farm)
- Threatened Species**
- Endangered**
- Northern Quoll
- Vulnerable**
- Ghost Bat
 - ▲ Grey Falcon
 - ▭ Pilbara Leaf-Nosed Bat
 - ▲ Pilbara Olive Python

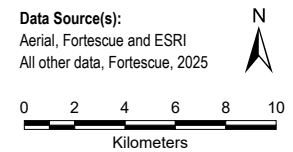


Figure 8-4-1
Conservation Significant Fauna
within the Development Envelope

Requested By: R. Dorji
 Drawn By: R. Kerr
 Revised By: rykerr
 Approved By:
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_020a_r1_Cons_Sig_Fauna

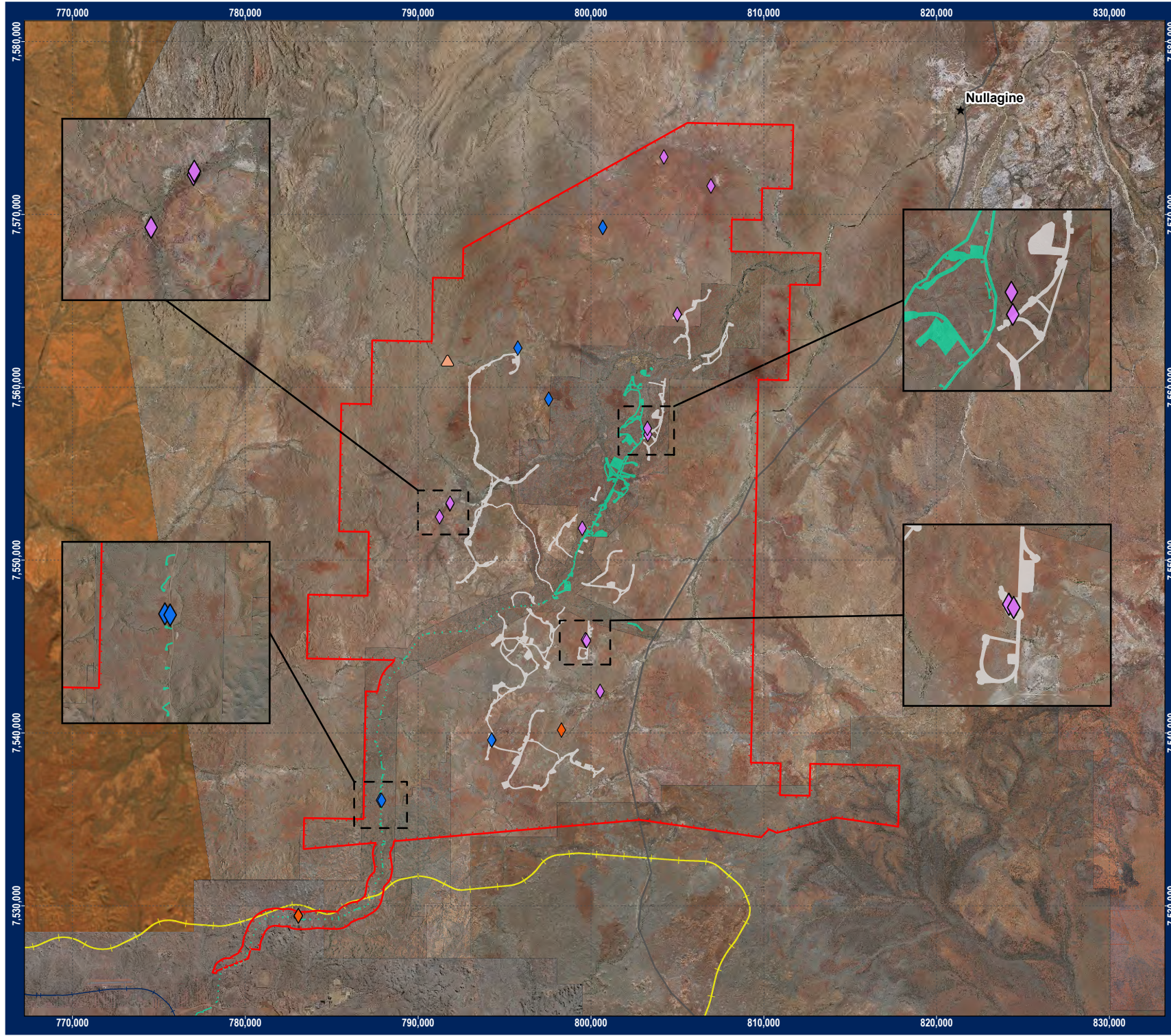
Date: 1/29/2026
 Size: A4L
 Revision: 1
 Confidentiality: 0

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- ▭ Development Envelope
 - ★ GOV Towns
 - Major Roads
 - Fortescue Rail
 - Roy Hill Rail
 - ▭ Indicative Disturbance Footprint
 - ▭ Approved Disturbance (Nullagine Pilot Wind Farm)
- Priority 1 (DBCA)**
- △ Gane's blind snake
- Priority 2 (DBCA)**
- ◇ Brush-tailed mulgara
 - ◇ Short-tailed mouse
 - ◇ Western pebble-mound mouse

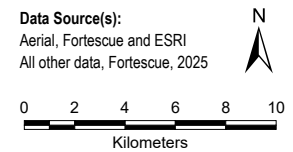


Figure 8-4-2
Conservation Significant Fauna
within the Development Envelope

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 1
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_020b_r1_Cons_Sig_Fauna
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- Legend**
- ▭ Development Envelope
 - ★ GOV Towns
 - Major Roads
 - Fortescue Rail
 - Roy Hill Rail
 - ▭ Indicative Disturbance Footprint
 - ▭ Approved Disturbance (Nullagine Pilot Wind Farm)
- Migratory Birds**
- Oriental Plover
 - Fork-tailed Swift

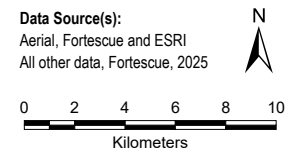


Figure 8-4-3
 Conservation Significant Fauna
 within the Development Envelope

Requested By: R. Dorji
 Drawn By: R. Kerr
 Revised By: rykerr
 Approved By:
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_020c_r1_Cons_Sig_Fauna

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Northern Quoll (*Dasyurus hallucatus*) - Recorded

Species Background Information

The Northern Quoll is a small marsupial characterised by white spots on a reddish-brown coat, a long tail and a pointed snout. This species is the smallest of the Australian quolls and is opportunistically omnivorous and predominantly nocturnal. The Northern Quoll is listed as Endangered under the BC Act and the EPBC Act (TSSC, 2005).

Abundance and Distribution

The species was widely distributed across northern Australia at the time of European settlement; however, its range has declined substantially over the last century, particularly in lowland areas and/or the semi-arid inland fringes of its range (Hill & Ward, 2010). The species has a discontinuous distribution across northern Australia and is now restricted to six separate land units including the Pilbara (Braithwaite & Griffiths, 1994). In the Pilbara region, the species is mostly found within ironstone formations, some river systems and the Burrup Peninsula and adjacent offshore islands. Within the Pilbara, Northern Quolls are most prevalent within complex rocky areas in the north, west and central Pilbara (DBCA, 2023b). Male Northern Quolls are estimated to have a territory range of over 150 ha, while their female counterparts maintain a range of 35 ha (TSSC, 2005).

There is no historical data on abundance for this species. The Pilbara Northern Quoll population is identified in the 'National Recovery Plan for the Northern Quoll (*Dasyurus hallucatus*)' as an important population due to the lack of Cane Toads in the region (Hill & Ward, 2010). Therefore, individuals recorded within the DE are considered part of an important population.

Habitat Preferences

Northern Quolls do not have highly specific habitat requirements and therefore occur in a wide variety of habitats across their range (Hill & Ward, 2010). The species is most abundant in rocky habitats due to the availability of shelters/dens, however, their preferred habitat includes rugged and rocky landscapes, including rocky hills, rocky creek lines, gorges, patches of granite outcrops and boulder-strewn slopes. The species can also be found in tropical and monsoonal rainforest, lowland savannah, vine thickets, on beaches and amongst human settlements (Moore *et al.*, 2021). In the Pilbara, rocky dens act as thermal refuges and a refuge from predators (Hernandez-Santin *et al.*, 2016).

The species uses various micro-habitats for foraging and denning such as gorges, breakaways and hills. It also occurs near creeks and drainage lines, where adjacent plains and vegetated areas provide habitat for foraging and the dispersal of young. The dens are often made in rock crevices, tree holes, or occasionally termite mounds (van Dyck & Strahan, 2008).

Complex, rocky landforms located close to permanent water sources are considered critical habitat for the Northern Quoll due to the protection this habitat provides from predators (DBCA, 2023b).



Threats

The main threat to Northern Quolls is cane toads, due to lethal toxic ingestion (Hill & Ward, 2010). However, Northern Quolls have also declined from larger areas in WA where cane toads have not yet reached, such as the Pilbara region. Within the Pilbara, key threats to the species include inappropriate fire regimes; predation by, and competition with, feral cats and foxes; and habitat loss, fragmentation and degradation (e.g. weed infestation), especially from mining and infrastructure development (DBCA, 2023b).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 142 records within 40 km of the DE occurring between 1979 and 2024. Of these records, 73 are located within the DE.

During the field surveys, the Northern Quoll was recorded on 229 occasions within the DE. The Northern Quoll was recorded in the drainage line/river/creek (major) and rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways) habitats (ecologia, 2025b).

Species Habitat Extent, Quality and Importance

Rocky areas and offshore islands (predominately of the Northern Territory (NT) and WA) are defined in the Northern Quoll's Recovery Plan as habitat critical to the survival of the species (Hill & Ward, 2010).

High density Northern Quoll populations are considered important for the long-term survival of the species when they occur in refuge-rich habitats (DoE, 2016). Based on the number of individuals identified (at least 17 determined from the survey through spot pattern analysis and trapping, and frequency of detections during field surveys (219 independent motion camera visits), the northern half of the DE appears to support a high density, reproductive population of Northern Quolls (ecologia, 2025b).

The rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways), gorges/gullies and hills/ranges/plateaux habitat within the northern half of the DE is considered habitat critical for the survival of the Northern Quoll (ecologia, 2025b), as shown in Figure 8-5. These habitats provide denning, shelter, foraging and/or dispersal habitat for the species.

Based on the EPBC Act referral guideline for the Northern Quoll (DoE, 2016), areas within 1 km of habitat critical for the survival of the Northern Quoll is considered 'critical supporting' habitat for foraging and dispersal. Therefore, a 1 km buffer on the following habitats within the northern portion of the DE are considered critical supporting habitat:

- Rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways),
- Gorges/gullies, and
- Hills/ranges/plateaux.

Additionally, rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways), gorges/gullies, granite outcrops (flat dome) and drainage line/river/creek (major) habitat types in the southern portion of the DE may be used by the species for dispersal and foraging activities and are considered supporting habitat. The drainage line/river/creek (major) habitat within the northern portion (outside 1 km buffer around critical habitat) also provides supporting habitat for



dispersal and foraging activities. The extent of potential Northern Quoll habitat types present in the DE is shown in Table 8-5:

Table 8-5: Northern Quoll Habitat Types in the Development Envelope

Portion of DE	Habitat type	Habitat importance	Extent in DE (ha)
Northern portion	Rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways)	Critical habitat (denning, shelter, dispersal and foraging)	1,302.62
	Gorges/gullies		36.70
	Hills/ranges/plateaux		1,322.34
	1 km buffer around critical habitat ⁹	Critical supporting habitat (foraging, dispersal)	18,462.97
Southern portion	Rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways)	Supporting habitat (foraging, dispersal)	820.18
	Gorges/gullies		4.81
	Granite outcrops (flat dome)		12.48
Northern and Southern Portions	Drainage line/river/creek (major) outside 1 km buffer around critical habitat	Supporting habitat (foraging, dispersal)	1,242.61

The habitat condition of these habitats is reported in Section 8.4.1.1 (in Table 8-2) and ranged from 'Degraded' to 'Excellent' (ecologia, 2025b).

⁹ Small sections of this buffer fall within the southern portion as presented in Figure 8-5.



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Legend

Development Envelope	Critical Fauna Habitats
GOV Towns	Gorges/Gullies
Major Roads	Hills/Ranges/Plateaux
Fortescue Rail	Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways)
Roy Hill Rail	Microhabitat Locations
Indicative Disturbance Footprint	Date Palm
Approved Disturbance (Nullagine Pilot Wind Farm)	Artificial pool/waterhole
Northern Quoll	Non-permanent pool/waterhole
Critical Supporting Habitat - North	Permanent pool/waterhole
Critical Supporting Habitat - South	Stick nest

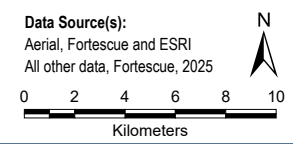


Figure 8-5
 Northern Quoll
 Critical Habitat and Records

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_021_r0_NQ_Habitats
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Pilbara Leaf-nosed Bat (*Rhinonictoris aurantia*) - Recorded

Species Background Information

The PLNB is an insectivorous, medium sized subpopulation of the orange leaf-nosed bat. The PLNB has a characteristic leaf-like nose, small ears and short fur that ranges in colour from bright orange to yellow, white or brown (DBCA, 2023b). The PLNB is listed as Vulnerable under the EPBC Act and BC Act.

Abundance and Distribution

The PLNB is endemic to WA, occurring throughout the Pilbara and adjoining regions of the Ashburton and Little Sandy Desert IBRA bioregions (Bat Call, 2021). It is estimated that the Pilbara and Kimberley populations have been separated by the Great Sandy Desert for over 30,000 years (Armstrong, 2006; 2008). While the species has been detected across most of the Pilbara, the PLNB's area of occupancy (excluding foraging habitat) is estimated to be less than 1,000 ha (DBCA, 2023b). Diurnal roosts suitable for the species are patchily distributed, often occurring in areas of economic interest (Cramer *et al.*, 2016). The PLNB typically forages up to 20 km from their diurnal roost, sometimes occurring up to 30 km away during lower temperature months. This distance can reduce significantly during the dry season in January and February (Bat Call, 2021) when PLNB colonies are believed to contract to the deepest mines and caves to maintain their preferred habitat temperature and humidity (ecologia, 2025b).

The PLNB population is estimated to be between approximately 10,000 to 15,000 individuals with records of occurrence throughout the Pilbara (excepting the northwestern area from Karratha to the Fortescue River (Bat Call, 2021). The PLNB population in the Pilbara and upper Gascoyne is considered an important population due to genetic and behavioural divergences from populations further north (Bat Call, 2021).

Habitat Preferences

The PLNB has very limiting habitat requirements, including caves and disused mines with hot and humid roost sites within the 28°C to 32°C temperature range and between 96% to 100% humidity (ecologia, 2025b). The species has poor thermoregulation, and its evaporative water loss is more than double that of other bats (Bat Call, 2021). Due to these specific requirements, PLNB habitat is typically found in caves with ephemeral pools or waterfalls at roost entrances or seeps and groundwater pools deep inside caves (DBCA, 2023b).

The PLNB has been observed foraging in a variety of habitats, including spinifex hummock grasslands, covering low rolling hills and shallow gullies, black soil grasslands, open savannah woodland and tall open forest and monsoon rainforest (ecologia, 2025b). The species is commonly encountered near small pools of water in rocky gullies and gorges (DEWHA, 2021).

According to the PLNB Conservation Advice (TSSC, 2016c), habitat considered critical for foraging includes gorges with pools, gullies, rocky outcrops, major watercourses and open grassland and woodland.

Threats

Threats to PLNB populations include feral cat predation, climate change, disturbance and destruction of roosts (including secondary impacts of mining such as vibration, dewatering,



light, noise and blasting), degradation and fragmentation of foraging habitat, hydrological change, reduction in water quality and interactions with wind turbines (DBCA, 2023b).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 214 records within 40 km of the DE, recorded between 1998 to 2021. None of these records are from within the DE. The closest record is from 1998 and is approximately 20 km north-east of the DE.

The surveys completed for the Proposal recorded echolocation calls at 25 sites within the Survey Area, of which 23 occurred within the DE (ecologia, 2025b and ecologia, 2026). The majority of these were recorded within the drainage line/river/creek (major) habitat and adjacent to water sources (mostly dams) during the wet season (ecologia, 2025b). There were no low-time calls (calls within 20 minutes of sunset or sunrise) indicative of a nearby potential roost site during current or previous surveys (ecologia, 2025b).

Species Habitat Extent, Quality and Importance

Critical habitat of the PLNB is defined in its Conservation Advice (TSSC, 2016c) as deep underground caves or complex mines that are used or suspected of being used for diurnal roosting with large colony sizes which are critical for the species' survival. Potential foraging habitat may also be classified as critical habitat depending on the type and quality of the habitat (TSSC, 2016c).

No suitable roost caves were identified during targeted surveys (ecologia, 2025b; ecologia, 2026). Roosting opportunities may occur in the rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways), hills/ranges/plateaux and gorges/gullies habitat types. Therefore, these habitats are considered critical habitat, as shown in Figure 8-6. Foraging habitat with water sources is also important for the species (TSSC, 2016c), therefore the drainage line/river/creek (major) habitat type is also considered critical habitat for the PLNB.

All other habitat types are considered potential foraging habitat and are considered supporting habitat for the PLNB (ecologia, 2025b). The extent of potential PLNB habitat present in the DE is shown in Table 8-6.

Table 8-6: PLNB Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways)	Critical habitat (potential roosting)	2,123.25
Hills/ranges/plateaux		1,322.34
Gorges/gullies		41.51
Drainage line/river/creek (major)	Critical habitat (foraging)	1,657.22
All other habitats	Supporting habitat (foraging)	83,984.97

The rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways), hills/ranges/plateaux and gorges/gullies habitats were reported to be of 'Excellent' condition (ecologia, 2025b). The Drainage line/river/creek (major) is reported to be in 'Degraded' to 'Good' condition (ecologia, 2025b).

The other supporting habitats within the DE which provide suitable foraging habitat include:



- 2,092.13 ha of drainage line/river/creek (minor),
- 12.48 ha of granite outcrops (flat dome),
- 5,366.12 ha of plain (cracking clays),
- 75,547.94 ha of plain (stony/gibber),
- 392.02 ha of woodland (closed), and
- 574.28 ha of woodland (open).

The condition of these habitats are reported in Section 8.4.1.1 (in Table 8-2) and ranged from 'Poor' to 'Excellent' (ecologia, 2025b).

The low activity rates recorded across the DE suggests the utilisation of habitat within the DE is most likely restricted to foraging and transit during the dry season (as very little activity was detected during the wet season) (ecologia, 2025b).



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- Legend**
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| Development Envelope | Critical Fauna Habitats |
| GOV Towns | Drainage Line/River/Creek (major) |
| Major Roads | Gorges/Gullies |
| Fortescue Rail | Hills/Ranges/Plateaux |
| Roy Hill Rail | Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways) |
| Indicative Disturbance Footprint | Microhabitat Locations |
| Approved Disturbance (Nullagine Pilot Wind Farm) | Date Palm |
| Pilbara Leaf-Nosed Bat | Artificial pool/waterhole |
| | Non-permanent pool/waterhole |
| | Permanent pool/waterhole |
| | Stick nest |

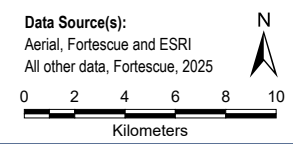


Figure 8-6
Pilbara Leaf-nosed Bat
Critical Habitat and Records

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_022_r0_PLNB_Habitats
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Grey Falcon (*Falco hypoleucos*) – Recorded

Species Background Information

The Grey Falcon is an elusive species considered the rarest of the falcon species. It is endemic to mainland Australia and consists of a single population (TSSC, 2020). The Grey Falcon is a medium-sized raptor with a sleek, grey plumage, thick chest and long wings with dark tips (TSSC, 2020). The Grey Falcon is listed as Vulnerable under the EPBC Act and the BC Act (TSSC, 2020).

Abundance and Distribution

Climate characteristics appear to play a crucial role in the Grey Falcon's distribution as the species is confined to areas with the highest annual average temperatures and an average rainfall of less than 500 mm (Schoenjahn, 2013). The species is found within inland Australia's arid and semi-arid zones from west or north of the Great Dividing Range from Queensland to Victoria, the northern two-thirds of South Australia and north of latitude 26°S in WA (BirdLife International, 2024).

The total population is estimated to be less than 1,000 mature individuals (Mullin *et al.*, 2020). The Conservation Advice for the Grey Falcon does not list any important populations nor important sites. With no biogeographical features that would split the population, it is unlikely that there are any sub populations. Therefore, as only one population occurs in Australia (Marchant & Higgins, 1999), (with no separate "important populations" defined) and that population is by association important (because it is a Threatened species), the individuals recorded within the DE are considered part of an important population.

Habitat Preferences

Grey Falcons can be found in timbered lowland plains, especially *Acacia* shrublands crossed by tree-lined watercourses (ecologia, 2025b). The species hunts in treeless areas such as tussock grassland and open woodlands, especially during winter (TSSC, 2020). Grey Falcons do not build their own nests, instead using old stick-nests of other bird species in trees or on artificial structures such as telecommunication towers and powerline poles (ecologia, 2025b).

The Grey Falcon is a specialist predator, primarily of birds including doves, pigeons, parrots, cockatoos and finches (ecologia, 2025b). The species usually catches their prey in aerial pursuit with a characteristic fast and level flight, low to the ground (NT Government, 2021). In addition to birds, the species has also been known to hunt flying insects and predate on mammals, reptiles and birds from a high perch (Schoenjahn *et al.*, 2022). The species is expected to be found at low altitudes within the DE, especially during foraging activity.

Threats

The Conservation Advice for the Grey Falcon (TSSC, 2020) identifies that the key threats to the species are cat predation, increased temperatures in arid and semi-arid Australia, habitat loss and fragmentation (including from grazing by exotic herbivores and nest shortage). Additional key threats include direct mortality, demographic and genetic stochastic events (increased by small population size), disturbance from birdwatchers and photographers and egg harvesting and falconry.



Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are nine records within 40 km of the DE, recorded between 1994 and 2016. None of these records are within the DE, with the closest record being approximately 67 m from the DE and dating from 1997.

The Grey Falcon was recorded in the DE on 23 occasions during the recent field surveys (ecologia, 2025b and ecologia, 2026). Ecologia (2026) considers there is at least one breeding pair of Grey Falcons inhabiting the DE. There were observations in the drainage line/river/creek (major and minor), woodland (open) plain (stony/gibber) and cleared habitats (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Habitat critical to the survival of the Grey Falcon is not defined within the Conservation Advice (TSSC, 2020) and there is no Recovery Plan or Listing Advice available for this species. Despite this, habitats within the DE that may provide nesting habitat have been defined as critical to the survival of the species (ecologia, 2025b).

At least 11 suitably sized stick nests were recorded within minor and major drainage lines within the DE (ecologia, 2025b), representing potential future nesting habitat for the species. A Grey Falcon was initially observed exhibiting nest defence behaviour against other raptors. Subsequent observations confirmed the presence of a female Grey Falcon attending an active nest (which is a reused Whistling Kite nest). A permanent water pool was present approximately 80 m east of the nest within the creek. Follow-up observations in September 2025, which fall outside the 24-month survey period, recorded a single well-developed chick in the nest, with two adult Grey Falcons observed nearby displaying defensive and foraging behaviours (ecologia, 2026). The location of this nest is shown in Figure 8-7.

Since the species re-uses old nests built by other raptors and corvids in eucalypt-lined drainage lines and waterholes, it may use drainage line/river/creek (major) habitat for nesting. All other habitats may be used for hunting. The extent of the potential Grey Falcon habitat present in the DE is shown in Table 8-7 and the critical habitat for the Grey Falcon is shown in Figure 8-7.

Table 8-7: Grey Falcon Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage line/river/creek (major)	Critical habitat (nesting)	1,657.22
All other habitat	Supporting habitat (hunting)	87,472.07

The drainage line/river/creek (major) habitat is considered critical to the survival of the Grey Falcon as it provides suitable nesting habitat for the species. This habitat was reported to be of 'Degraded' to 'Good' habitat condition (ecologia, 2025b).

The other habitats within the DE which provide suitable foraging habitat include:

- 2,123.25 ha of rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways),
- 2,092.13 ha of drainage line/river/creek (minor),
- 12.48 ha of granite outcrops (flat dome),



- 1,322.34 ha of hills/ranges/plateaux,
- 41.51 ha of gorges/gullies,
- 5,366.12 ha of plain (cracking clays),
- 75,547.94 ha of plain (stony/gibber),
- 392.02 ha of woodland (closed), and
- 574.28 ha of woodland (open).

The habitat condition of these habitats is reported in Section 8.4.1.1 (in Table 8-2) and ranged from 'Poor' to 'Excellent' (ecologia, 2025b).



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Legend

Development Envelope	Critical Fauna Habitats - Grey Falcon
GOV Towns	Drainage Line/River/Creek (major)
Major Roads	Critical Fauna Habitats - Peregrine Falcon
Fortescue Rail	Drainage Line/River/Creek (major)
Roy Hill Rail	Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways)
Indicative Disturbance Footprint	Grey Falcon
Approved Disturbance (Nullagine Pilot Wind Farm)	Date Palm
Grey Falcon	Artificial pool/waterhole
Active Nest	Non-permanent pool/waterhole
	Permanent pool/waterhole
	Stick nest

Data Source(s):
Aerial, Fortescue and ESRI
All other data, Fortescue, 2025

Scale: 1:300,000

Coordinate System: GDA 1994 MGA Zone 50

Project Name: 4519OP002_MP_EN_0093_PartIV_2

Document Name: 4519OP002_MP_EN_0093_023_r0_GF_PF_Habitats

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Figure 8-7
Grey Falcon and Peregrine Falcon
Critical Habitat and Records

Requested By: R. Dorji	Date: 1/29/2026
Drawn By: R. Kerr	Size: A4L
Revised By: rykerr	Revision: 0
Approved By:	Confidentiality: 0
Scale: 1:300,000	



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Pilbara Olive Python (*Liasis olivaceus barroni*) - Recorded

Species Background Information

The Pilbara Olive Python is a subspecies of the Olive Python. The subspecies has dull olive brown skin with a white/cream belly, pale lips, smooth scales in 55-80 cm rows at the mid-body and grows to 6.5 m in length but typically between 3-4 m (DBCA, 2023b). The Pilbara Olive Python is listed as Vulnerable under the EPBC Act and the BC Act.

Abundance and Distribution

The Pilbara Olive Python is known only from ranges within the Pilbara region in north-western Australia. As per the species' Conservation Advice, it is known to occur in twenty-one locations within this region (DBCA, 2023b) such as Pannawonica, Millstream, Tom Price and Burrup Peninsula (Pearson, 1993; Pearson, 2006). However, Fortescue survey database records and DBCA data confirm the species is found more widely in the region, recorded at over 50 locations and due to the cryptic nature of this species (DBCA, 2023b), there are likely further records within the broader Pilbara region. The species occurs throughout the Pilbara at all elevations within its range, extending south into the Gascoyne region as far as Yinnetharra Station (DBCA, 2023b). The cryptic nature of the Pilbara Olive Python makes it difficult to reliably estimate the total population (DBCA, 2023b).

Habitat Preferences

The Pilbara Olive Python prefers deep gorges and water holes within the Pilbara region (Pearson, 1993). During the winter months, the species hides away from water sources in caves and rock crevices. The species is adept at swimming and uses water holes to hunt, in warmer weather, the species is usually found near water and rocky outcrops (Swan, 2007). Despite the species' preference for ephemeral or permanent water sources, they have a large home range and can be recorded some distance from these features in rocky habitats. Critical habitat has not been defined for this species due to a lack of research on habitat use and life history (DBCA, 2023b). Potential habitat has been estimated to be concentrated in the southern and central areas of the Pilbara region, although the species does not occur exclusively in these areas (DBCA, 2023b).

Threats

The key threats to Pilbara Olive Python are poorly understood and highly speculative. Habitat destruction due to mining processes and infrastructure development is likely to have a profound impact on local populations (DBCA, 2023b). Other threats to the Pilbara Olive Python include predation by feral animals such as cats and foxes as well as predation of food sources and destruction of habitat due to gas and mining development (DEWHA, 2008). Potential threats include loss of suitable prey (especially in coastal locations with higher prevalence of foxes) and death resulting from misidentification as a poisonous brown snake (Pearson, 2006; Swan, 2007).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 22 records within 40 km of the DE, recorded between 2011 to 2024. Three of these records are from within the DE dating from 2011, 2019 and 2022.



The species was recorded on two occasions during the recent surveys within the plain (stony/gibber) habitat; once within the Survey Area (approximately 7 km from the DE) and once inside the DE (ecologia, 2025b).

Species Habitat Extent, Quality and Importance

Critical habitat for the Pilbara Olive Python is not listed within the species' Conservation Advice however, it states that the species will spend the cooler months in caves and rocky crevices (DEWHA, 2008). Ecologia (2025b) report that critical habitat for the species includes areas which may contain escarpments and gorges, preferably with rock crevices and outcrops near water holes.

As considered in ecologia (2025b), the hills/ranges/plateaux, gorges/gullies, drainage lines/river/creek (major) and rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways) habitats provide critical habitat for the species, as shown in Figure 8-8. The extent of potential Pilbara Olive Python habitat present in the DE is shown in Table 8-8.

Table 8-8: Pilbara Olive Python Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Hills/ranges/plateaux	Critical habitat (shelter, foraging, dispersal)	1,322.34
Gorges/gullies		41.51
Rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways)		2,123.25
Drainage lines/river/creek (major)	Critical habitat (foraging, dispersal)	1,657.22

The hills/ranges/plateaux, gorges/gullies, and rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways) provide potential shelter, foraging and dispersal habitat for the Pilbara Olive Python and are considered critical habitat. Additionally, drainage lines/river/creek (major) provides habitat considered critical for foraging and dispersal.

The habitat condition of these habitats is reported in Section 8.4.1.1 (in Table 8-2) and ranged from 'Good' to 'Excellent' (ecologia, 2025b).



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- Legend**
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|--|--|
| Development Envelope | Critical Fauna Habitats |
| GOV Towns | Drainage Line/River/Creek (major) |
| Major Roads | Gorges/Gullies |
| Fortescue Rail | Hills/Ranges/Plateaux |
| Roy Hill Rail | Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways) |
| Indicative Disturbance Footprint | Microhabitat Locations |
| Approved Disturbance (Nullagine Pilot Wind Farm) | Date Palm |
| Pilbara Olive Python | Artificial pool/waterhole |
| | Non-permanent pool/waterhole |
| | Permanent pool/waterhole |
| | Stick nest |

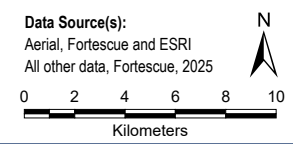


Figure 8-8
 Pilbara Olive Python
 Critical Habitat and Records

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_024_r0_POP_Habitats
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Ghost Bat (*Macroderma gigas*) - Recorded

Species Background Information

The Ghost Bat is the largest microchiropteran bat in Australia and is strictly carnivorous (van Dyck & Strahan, 2008). The species is light to dark grey, with long ears, large eyes, a simple nose-leaf and no tail. The species is listed as Vulnerable under the BC Act and EPBC Act (TSSC, 2016a).

Abundance and Distribution

The Ghost Bat was historically distributed widely across Australia (TSSC, 2016a). Currently, the species' range is discontinuous, with geographically disjunct colonies occurring in the Pilbara, Kimberly, Northern Territory, the Gulf of Carpentaria and coastal and near coastal eastern Queensland (TSSC, 2016a). Due to the geographically disjunct nature of colonies, the species has genetic variations. This includes the Pilbara populations being distinguished from others (TSSC, 2016a). Therefore, the individuals that are recorded within the DE are considered a part of an important population.

There are no robust measures of abundance across the species range. The global Ghost Bat population is estimated to be less than 10,000 individuals with a decreasing trend (DBCA, 2023b). It is estimated that the WA population is around 4,300 – 6,000 individuals, with approximately 1,300 – 2,000 individuals estimated from the Pilbara population (TSSC, 2016a).

Habitat Preferences

Ghost Bats are known to move between a number of caves seasonally or as dictated by weather conditions and/or foraging opportunities (Bat Call, 2021). The species can occur over a range of landforms and inhabit areas with caves suitable for roost sites (Churchill, 2009), which includes deep natural caves, disused mines and rock crevices that have a stable temperature and moderate to high relative humidity (TSSC, 2016a).

In the Pilbara, the preferred roosting habitat is caves beneath bluffs of low, rounded hills composed of Marra Mamba geology and granite rock piles (ecologia, 2025b). Ghost Bats have also been recorded within sandstone caves, under boulder piles and in abandoned mines (Churchill, 1998). These natural roost caves can be important breeding sites (TSSC, 2016a).

There is currently limited confirmed data regarding foraging habitat for the species. There are studies (using Very High Frequency radio tracking and GPS/satellite tracking equipment) that show the species can forage over larger areas, up to 12 km from their diurnal roost, with trip lengths of up to 30 km (Augusteyn *et al.*, 2017). A more recent study showed the average radial distance from the roost was 8.5 km, and the maximum radial distance 17.7 km (Bat Call, 2023). Bats travelling to distant sites have also been recorded between 20 and 30 km from their diurnal roost at night (Bat Call, 2021). A study in the Pilbara indicates the species prefers to forage in productive plain areas, such as isolated trees and trees on the edge of thin thickets on the plains or trees along the edges of watercourse woodlands (Bat Call, 2021).

The species may forage over large areas, depending on the productivity of the landscape (Churchill, 1998). The presence of pools of water is a critical factor of Ghost Bat foraging habitat (Armstrong, 2001). The species forages in cave entrances, drainage lines, along riparian corridors, on alluvial plains, and in supporting mulga woodland and tussock grasslands (Cramer *et al.*, 2022). Currently, there is no documented information on the



importance of surface drinking water for Ghost Bats; however, it is suggested that this species requires surface water for drinking, and water sources in proximity to day roost caves are therefore likely to be important (Bat Call, 2021).

Threats

The Ghost Bats Conservation Advice (TSSC, 2016a) lists the key threat as habitat loss and degradation, especially due to mining activities. Other threats include disturbance of breeding sites, modification of foraging habitat, collision with fences, collapse or reworking of old mines, contamination by mining residue at roost sites (which may reduce rates of survival or reproduction), disease, poison by cane toads and competition for prey with foxes and feral cats. Emerging future threats include future invasion of cane toads and large-scale wind farm developments (DBCA, 2023b).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 63 records within 40 km of the DE, recorded between 1956 to 2022. This includes one record approximately 10 km from the DE from 2016.

During the BBSUS survey, this species was recorded on motion camera within the drainage line/river/creek (major) habitat in the northern extent of the DE (ecologia, 2025b and ecologia, 2026). No echolocation nor social calls were detected by bat detectors during surveys (ecologia, 2025b and ecologia, 2026).

Species Habitat Extent, Quality and Importance

Habitat critical to the survival of the Ghost Bat is not defined in the Conservation Advice (TSSC, 2016a). Ecologia (2025b) did not locate any suitable roosting caves within the DE, with no low-time calls recorded (calls within 20 minutes of sunset or sunrise). Roosting opportunities may occur in the rocky escarpment (ridges/mesa/cliffs/ outcrops/breakaways), hills/ranges/plateaux and gorges/gullies habitat types (ecologia, 2025b). Therefore, these habitats are considered critical habitat, as shown in Figure 8-9. Foraging habitat with water sources is important for the species (Bat Call, 2021), therefore the drainage line/river/creek (major) habitat type is also considered critical habitat for the Ghost Bat.

All other habitat types are considered potential foraging habitat and are considered supporting habitat for the Ghost Bat (ecologia, 2025b). The extent of potential Ghost Bat habitat present in the DE is shown in Table 8-9.

Table 8-9: Ghost Bat Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways)	Critical habitat (potential roosting)	2,123.25
Hills/ranges/plateaux		1,322.34
Gorges/gullies		41.51
Drainage line/river/creek (major)	Critical habitat (foraging)	1,657.22
All other habitats	Supporting habitat (foraging)	83,984.97

The rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways), hills/ranges/plateaux and gorges/gullies habitats were reported to be of 'Excellent' condition (ecologia, 2025b). The Drainage line/river/creek (major) is in 'Degraded' to 'Good' condition (ecologia, 2025b).



The other supporting habitats within the DE which provide suitable foraging habitat include:

- 2,092.13 ha of drainage line/river/creek (minor),
- 12.48 ha of granite outcrops (flat dome),
- 5,366.12 ha of plain (cracking clays),
- 75,547.94 ha of plain (stony/gibber),
- 392.02 ha of woodland (closed), and
- 574.28 ha of woodland (open).

The condition of these habitat types are reported in Section 8.4.1.1 (in Table 8-2) and ranged from 'Poor' to 'Excellent' (ecologia, 2025b).



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- Legend**
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|--|--|
| Development Envelope | Critical Fauna Habitats |
| GOV Towns | Drainage Line/River/Creek (major) |
| Major Roads | Gorges/Gullies |
| Fortescue Rail | Hills/Ranges/Plateaux |
| Roy Hill Rail | Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways) |
| Indicative Disturbance Footprint | Microhabitat Locations |
| Approved Disturbance (Nullagine Pilot Wind Farm) | Date Palm |
| Ghost Bat | Artificial pool/waterhole |
| | Non-permanent pool/waterhole |
| | Permanent pool/waterhole |
| | Stick nest |

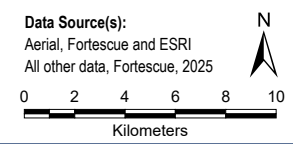


Figure 8-9
Ghost Bat
Critical Habitat and Records

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_025_r0_GB_Habitats
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Night Parrot (*Pezoporus occidentalis*) – Moderate Likelihood of Occurrence

Species Background Information

The Night Parrot is a small, ground-feeding, nocturnal parrot that is endemic to Australia (ecologia, 2025b). The species is medium sized (approximately 22-25 cm long) with characteristic bright green body, black and yellow markings and a yellow belly (Higgins, 1999). The Night Parrot is listed as Endangered under the EPBC Act and Critically Endangered under the BC Act.

Abundance and Distribution

Historic records indicate that the Night Parrot was once distributed over much of arid and semi-arid Australia, but the species was thought to be extinct for a long period of time before sightings near Fortescue Marsh in 2005 (ecologia, 2025b).

The elusive nature of the Night Parrot means that there are sparse records available of its current abundance and distribution. Despite improvement in detection methods, the number of Night Parrots in WA is unknown (DBCA, 2023b). The current distribution of the Night Parrot in WA is believed to be associated with the northern and central areas of WA's interior (DBCA, 2024d). The species is currently known from at least eight sites in northern WA (DBCA, 2023b). Recent records of the Night Parrot indicate that populations may persist in the Pilbara region (Night Parrot Recovery Team, pers comm., 2016, as referenced in TSSC (2016c)).

Habitat Preferences

The Night Parrot primarily forages on the ground and occupies a variety of habitats. It is most commonly associated with structurally complex, long-unburnt *Triodia* species on flat or low-lying terrain, as well as fertile plains dominated by chenopod and grass species (Murphy *et al.*, 2017). Recent studies indicate that roost sites are typically located within 10 km of feeding grounds with key seed-producing plants, rather than being strictly associated with spinifex or samphire vegetation (Murphy *et al.*, 2017). The species also depends on succulent vegetation in areas without standing water (Kearney *et al.*, 2016).

Evidence suggests that Night Parrots remain in the same area for extended periods where permanent water sources are available (Murphy *et al.*, 2017). However, in regions where surface water is ephemeral, their movement is likely influenced by water availability.

The structure of *Triodia* recorded by Jackett *et al.* (2017) closely resembles that described by Murphy *et al.* (2017) at Pullen Pullen Reserve, characterized by dense, ring-shaped formations. Murphy *et al.* (2017) documented a nest in *Triodia longiceps*, while Jackett *et al.* (2017) recorded one in *Triodia aff. plurinervata*. This suggests that nest site selection is more dependent on the structure of spinifex rather than the size of the spinifex patch or substrate type. Additionally, the proximity of dense ground-layer vegetation (e.g., *Triodia*) to suitable foraging areas likely influences nest and roost site selection, with adjacent samphire and herb fields potentially serving as a food source (Jackett *et al.*, 2017; Murphy *et al.*, 2017).

Within WA, most high probability and confirmed records have been associated with drainage lines, and paleo-drainage lines in particular (DBCA, 2023b).



Threats

The Night Parrot faces several threats, including predation by introduced species, increased fire extent, and potential competition with introduced herbivores such as cattle, sheep, and European rabbits (Lesenberg *et al.*, 2023). Climate change, particularly heat-induced water stress, is also a concern (Kearney *et al.*, 2016). Additional assumed threats include habitat loss and modification, human-induced fire events, invasive and domestic species, disease, and the collection of birds and/or eggs (TSSC, 2016d).

Known Populations in the Vicinity of the DE and Broader Region

The DBCA database shows 11 records of the species within 40 km of the DE, including a cluster of six records from 2022, located 20 km from the DE associated with the Fortescue Marsh. None of these records are located within the DE.

Targeted Night Parrot surveys were undertaken as a part of the ecologia (2025b) survey using acoustic monitoring. Night Parrot calls were not recorded during recent surveys, and it is considered unlikely that a long-term stable Night Parrot roosts exist in the areas immediately surrounding the points sampled. It is also considered unlikely that Night Parrots were foraging in proximity to these surveyed points at the time of sampling (ecologia, 2025b). However, the Night Parrot is considered moderately likely to occur in the DE based on the modelled distribution of the species and presence of suitable roosting and foraging habitat within the DE.

Species Habitat Extent, Quality and Importance

Although the Night Parrot was not recorded during the field surveys (ecologia, 2025b; ecologia, 2026), the following habitats are considered to represent potential critical roosting habitat for the species:

- Patches of long unburnt vegetation with *Triodia longiceps* (DBCA, 2024d): Vegetation units mapped by ecologia (2025b) within the DE that contain *Triodia longiceps* are AaEp, AcTe, AeTe, EcAcCs, ElAbTI, EvAcCc, as defined in Section 7.4.3. DBCA fire mapping (DBCA, 2024c) indicates that 4,882.01 ha of vegetation units containing *Triodia longiceps* within the DE has not been burnt in the past 18 years (since 2007).
- Patches of long unburnt plain (stony/gibber) habitat: DBCA fire mapping (DBCA, 2024c) indicates that 17,941.43 ha of plain (stony/gibber) habitat within the DE has not been burnt in the past 18 years (since 2007). Note that the 17,941.43 ha of long unburnt plain (stony/gibber) habitat excludes the areas that also overlap the long unburnt vegetation with *Triodia longiceps* (described in the dot point above). Therefore, the overlapping areas have not been counted twice.

Many areas of vegetation identified as potentially encompassing long unburnt *Triodia longiceps* were associated with major drainage lines and are considered unlikely to provide suitable roosting habitat for the Night Parrot (ecologia, 2025b). Despite this, a conservative approach has been applied, and these areas have been considered potential roosting critical habitat.

The plain (cracking clays) habitat within the DE may provide foraging habitat for the Night Parrot and is considered supporting habitat. Widespread cattle grazing and trampling throughout the DE is likely to prevent annual access to potential foraging resources within the



plain (cracking clays) habitat. Potential foraging resources identified within the DE are unlikely to sustain a permanent population of the species during the dry season and foraging resource availability during the wet season is likely to be restricted to periods following sustained rainfall and areas where cattle are excluded (ecologia, 2025b). Use of seasonal grasses herbland within the plain (cracking clays) habitat type by the Night Parrot is likely to be limited to areas with low/no cattle impacts, during periods of high seasonal productivity only.

Fresh water sources within the DE may be used by the Night Parrot, including pastoral dams and troughs, permanent and semi-permanent pools (including Bonnie Pool) and major drainage lines (during periods of seasonal inundation). These water sources are included in the habitats described above.

A lack of records of the Night Parrot has contributed to the inability to classify a definitive critical habitat for the species. As such, habitat critical to the survival of the species has not been identified in the Conservation Advice (TSSC, 2016d). The patches of long unburnt plain (stony/gibber) and patches of long unburnt vegetation with *Triodia longiceps* are considered critical habitat as they may be used by the Night Parrot for roosting, as shown in Figure 8-10. These habitats/ vegetation units were reported as 'Degraded' to 'Excellent' habitat condition (ecologia, 2025b).

The plain (cracking clays) habitat is considered supporting habitat as it may be used by the Night Parrot for foraging. This habitat was reported as 'Degraded' to 'Excellent' habitat condition (ecologia, 2025b).

The extent of potential Night Parrot habitat within the DE is shown in Table 8-10.

Table 8-10: Night Parrot Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Patches of long unburnt vegetation with <i>Triodia longiceps</i>	Critical habitat (roosting)	4,882.01
Patches of long unburnt plain (stony/gibber)		17,941.43
Plain (cracking clays)	Supporting habitat (foraging)	5,366.12



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- Legend**
- | | |
|---|-------------------------------|
| Development Envelope | Microhabitat Locations |
| GOV Towns | Date Palm |
| Major Roads | Artificial pool/waterhole |
| Fortescue Rail | Non-permanent pool/waterhole |
| Roy Hill Rail | Permanent pool/waterhole |
| Indicative Disturbance Footprint | Stick nest |
| Approved Disturbance (Nullagine Pilot Wind Farm) | |
| Patches of long unburnt plain (stony/gibber) | |
| Patches of long unburnt vegetation with Triodia longiceps | |

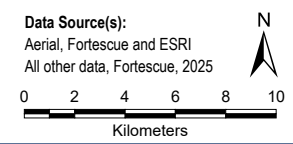


Figure 8-10
Night Parrot
Critical Habitat and Records

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_026_r0_NP_Habitats
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Australian Painted Snipe (*Rostratula australis*) – Moderate Likelihood

Species Background Information

The Australian Painted Snipe is a wading bird approximately 24-30 cm in length with a wingspan of 50-54 cm (DSEWPaC, 2013). The species has a brown body with white markings around the eyes and extending down the back of the body, bearing likeness to a harness. The male is smaller than females and has a duller head pattern (DSEWPaC, 2013). There is no seasonal variation in plumage, and the juvenile birds are similar in appearance to adult males (Marchant & Higgins, 2003). The species is listed as Endangered under both the EPBC Act and the BC Act.

Abundance and Distribution

The species is considered to have a wide geographic distribution, as according to the Conservation Advice the current extent of occurrence is estimated to be stable at 7,100,000 km² (DSEWPC, 2013). Records from the past two decades provide evidence that the Australian Painted Snipe occurs more widely and frequently in remote arid and tropical regions of Australia than previously understood (DSEWPaC, 2013). The Murray-Darling Basin, Queensland Channel Country, Fitzroy Basin of Central Queensland, south-eastern South Australia and adjacent parts of Victoria represent important areas for this species (Rogers *et al.*, 2005). While the total population size of the species is unknown, estimates range from a few hundred to 5,000 mature adults (DoE, 2025a).

Habitat Preferences

The Australian Painted Snipe occurs in shallow freshwater wetlands (both ephemeral and permanent), generally with good cover of grasses, rushes and reeds, low scrub, *Muehlenbeckia* spp., open timber or samphire (DSEWPaC, 2013). The species is most common in eastern Australia, however, has been recorded at wetlands in all states and territories (Barrett *et al.*, 2003; Blakers *et al.*, 1984).

Threats

The Conservation Advice for the Australian Painted Snipe (DSEWPaC, 2013) identifies several threats to the species such as: the loss and degradation of wetlands; loss of breeding habitat in the Murray-Darling Basin; grazing and associated trampling of wetland vegetation/nests; reduced rainfall and runoff in the Murray-Darling Basin associated with climate change; and predation by feral animals.

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there were two records in 2012 within 40 km of the DE, in the vicinity of the Fortescue Marsh. There are no DBCA records of this species within the DE and the species was not recorded in recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Critical habitat for the species is not reported within the species Conservation Advice (DSEWPaC, 2013).

Within the DE, the species may use the drainage lines/rivers/creeks (major) for dispersal and foraging. This habitat was reported as 'Degraded' to 'Good' condition (ecologia, 2025b).



Should the species be present in the DE, it is expected to occur intermittently whilst travelling to more suitable habitat (i.e., the Fortescue Marsh 9.3 km south-east of the DE and 25 km from nearest wind turbine).

The extent of potential Australian Painted Snipe habitat present in the DE is shown in Table 8-11.

Table 8-11: Australian Painted Snipe Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage lines/rivers/creeks (major)	Supporting habitat (dispersal and foraging)	1,657.22

8.4.3 Other Specially Protected Fauna

Other Specially Protected fauna are fauna of special conservation need that are dependent on ongoing conservation intervention, to prevent them becoming eligible for listing as Threatened under the BC Act. The Peregrine Falcon was the only Other Specially Protected fauna recorded in the ecologia (2025b) survey. Information about this species, including species presence, is discussed in the context of potential habitat within the DE.

Peregrine Falcon (*Falco peregrinus*) – High Likelihood

Species Background Information

The Peregrine Falcon is a large raptor (bird of prey) with a black hood, blue-black upperparts and a creamy-white chin, throat and underparts. The species has yellow eye ring and bill with a black tip (BirdLife Australia, 2017). It is classified as Other Specially Protected under the BC Act.

Abundance and Distribution

The Peregrine Falcon is widespread across Australia. However, it requires specific nesting sites as outlined below (ecologia, 2025b).

This species can be found in most habitats, from arid zones to rainforests and at most altitudes. Adult individuals have a home range of 20 km to 30 km throughout the year. Whilst young individuals disperse widely, they often return to their original home area to breed (BirdLife Australia, 2017).

Habitat Preferences

The Peregrine Falcon inhabits cliffs and gorges, inland drainage systems, lowland plains and *Acacia* shrublands intersected by water courses (ecologia, 2025b). The species hunts in all habitats. This species does not build nests but requires cliffs, rocky outcrops, or large tree hollows (Johnstone & Storr, 1998).

Threats

Threats to the species include collisions with infrastructure (BirdLife Australia, 2017), land clearing and chemical residues, which can cause reproductive failure and an inability to maintain populations (BirdLife Australia, 2023).



Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 12 records within 40 km of the DE, recorded between 2003 and 2022. The closest record is approximately 2 km south of the DE and was recorded in 2011. There are no DBCA records of this species within the DE and the species was not recorded in the recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Critical habitat is not defined for this species; however, it is assumed that nesting habitat is critical for this species.

Suitable nesting habitat within the DE includes the tree hollows and breakaways, however, due to its widespread nature, the species may also overfly all habitats of the DE intermittently (ecologia, 2025b). There are suitable cliffs and overhangs within the rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways) habitat and large trees within the drainage line/river/creek (major) habitat. Therefore, suitable nesting habitat within the DE includes the drainage line/river/creek (major) and rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways) habitats, and these habitats are considered critical to the survival of the species, as shown on Figure 8-7. The condition of these habitats ranged from 'Degraded' to 'Excellent' (ecologia, 2025b).

The species has the potential to use all habitats while foraging. The extent of potential Peregrine Falcon habitat present in the DE is shown in Table 8-12.

Table 8-12: Peregrine Falcon Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways)	Critical habitat (nesting and foraging)	2,123.25
Drainage line/river/creek (major)		1,657.22
All other habitats	Supporting habitat (foraging)	85,348.82

The other habitats within the DE which provide suitable foraging habitat include:

- 2,092.13 ha of drainage line/river/creek (minor),
- 12.48 ha of granite outcrops (flat dome),
- 41.51 ha gorges/gullies,
- 1,322.34 ha of hills/ranges/plateaux,
- 5,366.12 ha of plain (cracking clays),
- 75,547.94 ha of plain (stony/gibber),
- 392.02 ha of woodland (closed), and
- 574.28 ha of woodland (open).

The condition of these habitats is discussed in Section 8.4.1.1 (in Table 8-2) and ranged from 'Degraded' to 'Excellent' (ecologia, 2025b).



Due to this species' widespread habitat types (ecologia, 2025b), it is unlikely to be restricted to or reliant on the habitat within the DE.

8.4.4 Priority Fauna

DBCA maintains a list of Priority species that have not been assigned statutory protection under the BC Act. This system ranks species from Priority 1 to Priority 4. The following section will discuss Priority fauna that was recorded during the ecologia (2025b) survey or has a 'High' or 'Moderate' likelihood of occurrence in the DE.

Gane's Blind Snake (*Anilius ganeī*) – Recorded

Species Background Information

There is limited information available on this species, due to its fossorial lifestyle (ecologia, 2025b). This species is exclusively insectivorous and is thought to burrow into social insect colonies to feed on termites and ants (including their eggs and pupae) (Wilson & Swan, 2021). This species is listed as Priority 1 under the BC Act.

Abundance and Distribution

This species has been recorded within between Newman and Pannawonica within the Pilbara region (Wilson & Swan, 2010; 2021). There is limited information available of this species abundance.

Habitat Preferences

This species has been suggested to prefer subterranean habitats near moist gullies and gorges (Wilson & Swan, 2010; 2021). There are also records from sandy soil vegetated with spinifex and mulga woodland (ecologia, 2025b).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there is one record approximately 38 km north of the DE and is from 2009. This species was recorded once during recent surveys within the plain (stony/gibber) habitat (ecologia, 2025b).

Species Habitat Extent, Quality and Importance

Habitat critical to the survival of the Gane's Blind Snake is not defined. The species is likely to utilise the hills/ranges/plateaux, plain (stony/gibber), gorges/gullies and drainage line/river/creek (major) habitats (ecologia, 2025b) as supporting habitat. These habitats were reported as 'Excellent' condition, excluding the drainage line/river/creek (major) habitat which was reported as 'Degraded – Good' (ecologia, 2025b).

The extent of potential Gane's Blind Snake habitat present in the DE is shown in Table 8-13.

Table 8-13: Gane's Blind Snake Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Hills/ranges/plateaux	Supporting habitat	1,322.34
Plain (stony/gibber)		75,547.94



Habitat type	Habitat importance	Extent in DE (ha)
Gorges/gullies		41.51
Drainage line/river/creek (major)		1,657.22

Brush-tailed Mulgara (*Dasyercus blythi*) - Recorded

Species Background Information

Mulgaras are small carnivorous marsupials with sandy brown fur and grey underparts (NESP Threatened Species Recovery Hub, 2021). The species is approximately 15-20 cm long and characterised by a black and bushy tail with a pointed end. The Brush-tailed Mulgara is predominantly nocturnal and usually shelters in burrow systems during the day. This species is listed as Priority 4 by DBCA.

Abundance and Distribution

The species is found throughout Australia's arid and semi-arid regions (Newman-Martin *et al.*, 2023). The Brush-tailed Mulgara's distribution is bound by the Tanami Desert in the north, the Simpson Desert in the east, the Great Victoria Desert in the south and the Carnarvon, Murchison and Pilbara regions in the west (Woinarski *et al.*, 2012).

The geographic distribution of the Mulgara has declined since European settlement, predominantly due to domestic cat predation (Newman-Martin *et al.*, 2023) and other factors such as rainfall, food resources, burrow availability and fire (Pavey *et al.*, 2012). The population of the Brush-tailed Mulgara also fluctuates in response to seasonal conditions (Woinarski *et al.*, 2012). Despite this historic decline, the Mulgara population is considered stable, persisting in small, low-density isolated populations during periods of low rainfall (Molyneux *et al.*, 2018).

Habitat Preferences

The Brush-tailed Mulgara occurs primarily in spinifex grasslands throughout most of the arid zone and digs burrows in flats between low sand dunes but also uses other vegetation types (often sandplains, grasslands, and woodlands) when mixed with or adjacent to hummock grasslands (NESP Threatened Species Recovery Hub, 2021).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 18 records within 40 km of the DE, recorded between 1947 and 2016. The closest records include a clustered group of six records approximately 10 km east of the DE from 2016.

This species was recorded within the DE in the plain (stony/gibber) habitat (ecologia, 2025b).

Species Habitat Extent, Quality and Importance

The habitat critical to the survival of the Brush-tailed Mulgara has not been defined. Supporting habitat for the species in the DE occurs within the plain (stony/gibber) habitat type that encompasses spinifex grasslands and substrates for burrowing, as outlined by ecologia (2025b) and shown in Table 8-14. This habitat type was reported as 'Good' to 'Excellent' condition (ecologia, 2025b) Habitats likely to be used by this taxon are common and



widespread within and outside of the DE in the broader Pilbara region, so it is unlikely to be restricted to or reliant on the habitat within the DE ecologia (2025b). Table 8-14

Table 8-14: Brush-tailed Mulgara Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Plain (stony/gibber)	Supporting habitat (burrowing)	75,547.94

Short-tailed Mouse (*Leggadina lakedownensis*) - Recorded

Species Background Information

The Short-tailed Mouse is a small, nocturnal and solitary rodent (ecologia, 2025b). The species has a light grey-brown body with a pure white belly, blunt snout, short ears and a tail shorter than its body length (DBCA, 2022). The species is listed as Priority 4 by DBCA.

Abundance and Distribution

The species is present across northern Australia from Cape York to the Pilbara, with one population on Thevenard Island (DBCA, 2022). It has also been recorded in hilltops and sandy coastal areas near Onslow and from cracking clay communities from Cape Preston in the west to the northern flanks of the Fortescue Marshes in the east (Halpern Glick Maunsell *et al.*, 2001).

Habitat Preferences

The Short-tailed Mouse is predominantly found in habitats seasonally inundated with red or white sandy-clay soils (Moro & Kutt, 2008). The species occupies a variety of different habitats, including spinifex and tussock grasslands, samphire and sedgelands, *Acacia* shrublands, tropical *Eucalypt* and *Melaleuca* woodlands and stony ranges (ecologia, 2025b). In the Pilbara, the species is predominantly found on cracking clays (DBCA, 2022).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 10 records within 40 km of the DE, recorded predominately in 2004 with one record from 2020. The closest DBCA record is approximately 200 m west of the DE and was recorded in 2004.

Ecologia (2025b) recorded this species on eight occasions within the DE, all of which were within the plain (cracking clays) habitat, except one record in the drainage lines/river/creek (minor) habitat.

Species Habitat Extent, Quality and Importance

Critical habitat is not defined for this species. Within the DE, the species would likely utilise the plain (cracking clays) and drainage line/river/creek (minor) habitats for shelter foraging and dispersal (ecologia, 2025b). These habitats were reported to range from 'Poor' to 'Excellent' habitat condition (ecologia, 2025b).

Suitable habitat for the Short-tailed Mouse is not restricted to the DE, with the known distribution of the species extending beyond the confines of the DE boundary (ecologia, 2025b).



These habitats are considered supporting habitat for the species. The extent of potential Short-tailed Mouse habitat present in the DE is shown in Table 8-15.

Table 8-15: Short-tailed Mouse Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Plain (cracking clays)	Supporting habitat (shelter, foraging, dispersal)	5,366.12
Drainage line/river/creek (minor)	Supporting habitat (shelter, foraging, dispersal)	2,092.13

Western Pebble-mound Mouse (*Pseudomys chapmani*) - Recorded

Species Background Information

The Western Pebble-mound Mouse is a rodent with light brown fur, fawn sides and a darker head. The species weighs approximately 10 g (Hamersley Iron, 2023). The species is listed as Priority 4 under the BC Act.

Abundance and Distribution

The species was previously thought to have been limited to a small section of the Central Pilbara; however, it has since been confirmed to be present from the Chichester Range in the north-west to the Rudall River in the east (Hamersley Iron, 2023).

Habitat Preferences

The Western Pebble-mound Mouse primarily inhabits areas with shallow soils or exposed bedrock. Its preferred vegetation consists of hummock grasslands dominated by *Triodia* grasses, along with various shrubs, particularly *Acacia* and *Senna* species (Lee, 1995; Menkhorst & Knight, 2010). This species constructs distinctive pebble mounds using small stones, which are limited to specific stone types and are typically located on gentle slopes and spurs vegetated with hard spinifex. It can also be found on ridge tops and flatter lower areas, where scattered shrubs and occasional eucalypts are present (Hamersley Iron, 2023).

Home range estimates vary between sexes, with males occupying an average range of 14.4 ha (+/- 6.7 ha) and females covering 4.6 ha (+/- 2.7 ha). Core home areas are smaller, averaging 0.93 ha (+/- 0.29 ha) for males and 0.29 ha (+/- 0.16 ha) for females (Anstee *et al.*, 1997).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are 76 records within 40 km of the DE, recorded between 1993 and 2021. The closest DBCA record is approximately 1 km west of the DE and was recorded in 2005.

Secondary evidence (mounds) of the Western Pebble-mound Mouse was recorded during the recent surveys. This included mounds at 10 sites within the DE within the rocky escarpment (ridges/mesa/cliffs/outcrops/breakaways) and plain (stony/gibber) habitat types (ecologia, 2025b).

Species Habitat Extent, Quality and Importance



Habitat critical to the survival of the Western Pebble-mound Mouse is not defined. However, the plain (stony/gibber), hills/ranges/plateaux and rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways) habitats are likely to be used by the species for mound construction, foraging and dispersal (ecologia, 2025b) and are considered supporting habitat. These habitats were reported to range from ‘Good’ to ‘Excellent’ condition (ecologia, 2025b).

This species is considered relatively widespread throughout the Pilbara, with suitable habitat for this species extending well beyond the confines of the DE (ecologia, 2025b).

The extent of potential Western Pebble-mound Mouse habitat present in the DE is shown in Table 8-16.

Table 8-16: Western Pebble-mound Mouse Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways)	Supporting habitat (mounds, foraging and dispersal)	2,123.25
Hills/ranges/plateaux	Supporting habitat (mounds, foraging and dispersal)	1,322.34
Plain (stony/gibber)	Supporting habitat (mounds, foraging and dispersal)	75,547.94

Long-tailed Dunnart (*Antechinomys longicaudata*) – High Likelihood

Species Background Information

The Long-tailed Dunnart is a small, carnivorous marsupial with a characteristically long tail, more than twice the length of its body (Burbidge, McKenzie & Fuller, 2008). The species is well adapted to climbing, as indicated by its long, muscular tail, striated foot pads and behavioural observations made in captivity (Burbidge *et al.*, 2008). The Long-tailed Dunnart feeds on arthropods such as beetles, ants, cockroaches, centipedes, grasshoppers and larvae. This species is listed as Priority 4 under the BC Act.

Abundance and Distribution

The Long-tailed Dunnart is rarely encountered but is thought to occur in low population densities across the Pilbara, Murchison, north-eastern Goldfields, Ashburton and Gibson Desert regions (ecologia, 2025b).

Habitat Preferences

The Long-tailed Dunnart is predominantly found in rugged, rocky country in the Western arid zone and sometimes open country with a gravel/stony mantle (Burbidge *et al.*, 2008). The species’ habitat includes *Acacia*, rocky scree with hummock grass and shrubs, and tall open shrubland and woodlands (Burbidge *et al.*, 2008).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are two records within 40 km of the DE. One record is from 2011 and is approximately 35 km north-east of the DE. The other record is from 2005 and is 1.5 km west of the DE.



This species was not recorded during recent surveys (ecologia, 2025b).

Species Habitat Extent, Quality and Importance

Habitat critical to the survival of the Long-tailed Dunnart is not defined. Due to the highly cryptic nature of the species, despite not being recorded during surveys (ecologia, 2025b) it is still considered to have a high likelihood of occurrence in the DE. If the species should be present in the DE, it would utilise the rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways), gorges/gullies, granite outcrops (flat dome) and hills/ranges/plateaux habitats for supporting habitat (shelter, foraging and dispersal). These habitats were reported as ‘Excellent’ condition (ecologia, 2025b).

The extent of potential Long-tailed Dunnart habitat present in the DE is shown in Table 8-17.

Table 8-17: Long-tailed Dunnart Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways)	Supporting habitat (shelter, foraging, dispersal)	2,123.25
Gorges/gullies	Supporting habitat (shelter, foraging, dispersal)	41.51
Granite outcrops (flat dome)	Supporting habitat (shelter, foraging, dispersal)	12.48
Hills/ranges/plateaux	Supporting habitat (shelter, foraging, dispersal)	1,322.34

8.4.5 Migratory Species

Migratory species are protected under the BC Act and/or EPBC Act. Migratory species are also protected under the following international agreements:

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention),
- China–Australia Migratory Bird Agreement (CAMBA),
- Japan–Australia Migratory Bird Agreement (JAMBA), and
- Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA).

Two Migratory species have been recorded during the ecological (2026) surveys: the Fork-tailed Swift and the Oriental Plover. No other Migratory species were recorded within the DE during the field surveys. However, the following species have been recorded within a 40 km buffer of the DE. These species are expected to intermittently occur within the DE (overflying or temporary utilisation of aquatic habitat) when migrating to the Fortescue Marsh (ecologia, 2025b).

The Fortescue Marsh is located approximately 9.3 km south-east of the DE (25 km from nearest wind turbine) and is an extensive ephemeral wetland that occupies an area of 1,000 km² when flooded. This marsh is nominated as a Ramsar site and is listed on the Directory of Important Wetlands, due to supporting several hundred waterbird species during flood seasons (State of WA, 2018).



All species discussed in the following section have a 'Moderate' likelihood of occurrence in the DE. Information about each species, including species presence, is discussed in the context of potential habitat extents within the DE.

Fork-tailed Swift (*Apus pacificus*) - Recorded

Species Background Information

The Fork-tailed Swift is a medium to large swift with a length of 18-21 cm, a wingspan of 40-42 cm and weighing approximately 30-40 g with a characteristically long forked tail (DoE, 2025c). The Fork-tailed Swift is listed as Migratory under the BC Act and the EPBC Act. The species is also listed under CAMBA, JAMBA and ROKAMBA.

Abundance and Distribution

The global population of the species has not been quantified and there is no measure of abundance in Australia (DoE, 2025c). Populations throughout most the range of the Fork-tailed Swift is considered to be stable, except in Pakistan (del Hoyo *et al.*, 1996). The species is listed as a 'Species of Least Concern' on IUCN Red List of Threatened Species.

The Fork-tailed Swift arrives in WA from October to November and departs around April. The species is most common in Broome, where maximum numbers occur in February (DoE, 2025c). While in WA, the species occurs primarily along coastal and subcoastal areas between Augusta and Carnarvon with sparse inland records of the Fork-tailed Swift (DoE, 2025c).

Habitat Preferences

The Fork-tailed swift occurs primarily over inland plains and sometimes above foothills or in coastal areas, the species often occurs over cliffs and beaches as well as over islands and well out to sea (DoE, 2025c). The species is predominantly aerial, flying from 1-300 m above ground. The Fork-tailed Swift occurs in a variety of different habitats, from above rainforests to semi-deserts. In Australia the species mostly occurs over dry or open habitats including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh (Higgins, 1999). The Fork-tailed Swift doesn't breed in Australia (DoE, 2025c).

Threats

While there are no significant threats to the Fork-tailed Swift in Australia, potential threats include habitat destruction and predation by feral animals (DoE, 2025c).

Known Populations in the Vicinity of the DE and Broader Region

According to DBCA databases, there is a single record of the Fork-Tailed Swift within 40 km of the DE from 2013. This record is approximately 27 km south of the DE.

This species was recorded on four occasions during the wet season survey conducted in February 2025 (ecologia, 2026).

Species Habitat Extent, Quality and Importance

There is no Conservation Advice, Listing Advice nor Recovery Plan for this species, and therefore critical habitat is not defined. Due to sparse records, suitable habitat present at the



Fortescue Marsh (9.3 km from the DE), this species is likely to only overfly the DE intermittently. Although the Fork-tailed Swift has the potential to occur in the airspace above the DE, it is not reliant on the habitats within the DE (ecologia, 2025b).

Oriental Plover (*Charadrius veredus*) – Recorded

Species Background Information

The Oriental Plover is a medium plover with an average length of 21-25 cm (DoE, 2025d). Both male and female members of the species have a similar non-breeding plumage with a brown crown and nape, pale brown hindneck and brown upperparts. In breeding plumage, the female Oriental Plover looks similar to non-breeding plumage while the males have whiteish head and neck with a dark brown patch at the back of the crown (Hayman *et al.*, 1986; Marchant & Higgins, 1993). The Oriental Plover is listed as Migratory under the BC Act and EPBC Act. The species is also listed under CAMBA, JAMBA and ROKAMBA.

Abundance and Distribution

While the Oriental Plover does not breed in Australia, the global population of the species spends the non-breeding season in northern Australia, in both coastal and inland areas (Bishop, 2006; Stewart *et al.*, 2007). The species arrives in Australia from early to mid-September in the north-western region and occurs between Exmouth Gulf and Derby in WA. The species has also been known to occur further inland in Northern WA, the Northern Territory and north-western Queensland (DoE, 2025d).

Habitat Preferences

The Oriental Plover is found within inland wetlands and sheltered coastal areas; it uses both permanent and ephemeral wetlands (ecologia, 2025b). The species forages among short grass, on hard stony bare ground, mudflats or among seaweed on beaches. Oriental Plovers roost on soft wet mud, shallow water of beaches and tidal mudflats and dry, open habitats, such as saltmarsh or paddocks (DoE, 2025d).

Within Australia, after arriving in non-breeding grounds in northern Australia, the Oriental Plover spends a few weeks in coastal habitats before travelling further inland (DoE, 2025d). In inland Australia, the species can be found in flat, open, semi-arid or arid grasslands areas with short and sparse grass. In the wet season, the Oriental Plovers can be found in lightly wooded grasslands or estuarine and littoral environments (DoE, 2025d).

Threats

Threats to the Oriental Plover include disturbance from human recreation, modification or destruction of habitat, aircraft strike at airports and vehicle strike (DoE, 2025d).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are three records within 40 km of the DE. These records are from 2017, approximately 14 km north of the DE.

This species was recorded on a single occasion during the southward migration in September 2024 (ecologia, 2026).

Species Habitat Extent, Quality and Importance



Habitat critical to the survival of the species is not defined. The Oriental Plover may use all habitats within the DE as dispersal and foraging habitat. The extent of potential Oriental Plover habitat present in the DE is shown in Table 8-18.

Table 8-18: Oriental Plover Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
All habitats	Supporting habitat (dispersal and foraging)	89,129.29

The other habitats within the DE which provide suitable foraging habitat include:

- 1,657.22 ha of drainage Line/River/Creek (major),
- 2,092.13 ha of drainage line/river/creek (minor),
- 12.48 ha of granite outcrops (flat dome),
- 41.51 ha gorges/gullies,
- 1,322.34 ha of hills/ranges/plateaux,
- 5,366.12 ha of plain (cracking clays),
- 75,547.94 ha of plain (stony/gibber),
- 2,123.25 ha of rocky escarpments (ridges/mesa/cliffs/outcrops/breakaways),
- 392.02 ha of woodland (closed), and
- 574.28 ha of woodland (open).

The Oriental Plover may use the drainage line/river/creek (major) habitat for dispersal and foraging. This habitat was reported as ranging from ‘Degraded’ to ‘Good’ condition (ecologia, 2025b). The remaining habitats are in ‘Poor’ to ‘Excellent’ condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and occur intermittently during migratory movement to the Fortescue Marsh.

Common Greenshank (*Tringa nebularia*) – Moderate Likelihood

Species Background Information

The Common Greenshank is a large, carnivorous wader, measuring approximately 30-35 cm in length with a wingspan of 55-65 cm (DCCEEW, 2024). The species is characterised by their long, slightly upturned bill. Although there is no visual difference between the male and female birds, there is some seasonal variation in plumage and juveniles are differentiated from adults. The Common Greenshank is listed as Endangered and Migratory under the EPBC Act and Migratory under the BC Act. The species is also listed under the following international Migratory bird agreements: CAMBA, JAMBA and ROKAMBA.

Abundance and Distribution



The global distribution of the species is widespread, it is found in Europe, Africa, Asia, Melanesia and Australasia (DCCEEW, 2024). Despite this widespread distribution, the Common Greenshank population is in decline. It is currently estimated that there are approximately 23,700 mature individuals in the wild (DCCEEW, 2024). In Australia, the species' distribution is predominantly spread across coastal regions, and they are found in all types of wetlands (Higgins & Davies, 1996). The species is present in WA, predominantly in coastal areas from Cape Arid to Carnarvon. In the Kimberley region, the Common Greenshank has been recorded primarily in the south-west and northeast (Higgins & Davies, 1996).

Habitat Preferences

The species forages on the edge of wetlands, in soft mud on mudflats, in channels or around the shallow edge of waterbodies. The species roosts on the coast and inland in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms, and flooded crops (BirdLife Australia, 2021).

The Common Greenshank is found in shallow, fresh waters such as claypans, swamps, river pools as well as salt waters such as estuaries, samphire flats, reef flats (ecologia, 2025b). The Common Greenshank does not breed in Australia (DCCEEW, 2024).

Threats

The Common Greenshank Conservation Advice (DCCEEW, 2024) identifies that the threats to the species are habitat loss, downstream effects of large dams, disturbance at feeding and roosting sites, sea level rise, invasive species, hunting, fishing bycatch and pollution.

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there were four records between 2009 to 2018 that were approximately 14 km from the DE. There are no DBCA records of this species within the DE and the species was not recorded in the recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Critical habitat for the species is reported as a mosaic of feeding and roosting habitat (TSSC, 2024). The species is likely to overfly or intermittently use habitat within the DE. If the species were to be present within the DE, the species is likely to be associated with migratory movement to the Fortescue Marsh (9.3 km south-west from the DE) and would not represent permanent occupancy (ecologia, 2025b).

Within the DE, the species may use the drainage lines/rivers/creeks (major) for dispersal and foraging. This habitat is therefore not considered habitat critical to the survival of the species. This habitat condition was reported as 'Degraded' to 'Good' (ecologia, 2025b). The extent of potential Common Greenshank habitat present in the DE is shown in Table 8-19.

Table 8-19: Common Greenshank Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage lines/rivers/creeks (major)	Supporting (dispersal and foraging)	1,657.22



Sharp-tailed Sandpiper (*Calidris acuminata*) – Moderate Likelihood

Species Background Information

The Sharp-tailed Sandpiper is a small sandpiper, measuring approximately 17-22 cm long with a 36 – 43 cm wingspan. The species is identified by their pot-belly, extended rear, short neck and small, flat head. There is little variation between the two sexes but a marked seasonal plumage variation and distinction between juveniles and adults (DCCEEW, 2024a). The Sharp-tailed Sandpiper is listed as Vulnerable under the EPBC Act and Migratory under the BC Act and EPBC Act. The species is also listed under Bonn, CAMBA, JAMBA and ROKAMBA.

Abundance and Distribution

The species is listed as Vulnerable on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, with an estimated 71,000 mature individuals in the wild (Clemens *et al.*, 2021).

The Sharp-tailed Sandpiper is present within all Australian states during the non-breeding season (DCCEEW, 2024a). The species occurs in a range of freshwater and saline habitats, in both inland and coastal locations (Higgins & Davies, 1996). In WA, the Sharp-tailed Sandpiper occurs from Cape Arid to Carnarvon, around coastal and sub-coastal plains of the Pilbara Region, through to the Kimberley Division. There are scattered records along the Nullabor Plain and southern areas of the Great Victoria Desert (Higgins & Davies, 1996).

Habitat Preferences

The species is predominantly found within the muddy edges of shallow wetlands with inundated or emergent sedges, grass, saltmarsh or other low vegetation (Pizzey & Knight, 2013). Their foraging habitats vary from fresh to hypersaline, the species mostly feeds along the edge of water on mudflats, coastal and inland wetlands and sewage ponds (Higgins & Davies, 1996). The Sharp-tailed Sandpiper roosts on rocky and sandy beaches, freshwater habitats, and inland saltwater habitats (Higgins & Davies 1996).

The Sharp-tailed Sandpiper does not breed in Australia (DCCEEW, 2024a).

Threats

The Conservation Advice for the Sharp-tailed Sandpiper identifies threats to the species such as habitat loss, degradation, fragmentation, climate change, invasive species, pollution and exploitation (DCCEEW, 2024a).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are three records within 40 km of the DE. The records range from 2007 to 2010, with the closest record approximately 11 km north-east of the DE.

This species was not recorded during recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

The Conservation Advice for the Sharp-tailed Sandpiper (DCCEEW, 2024) defines habitat critical to the survival as areas that are necessary:



- For activities such as foraging, breeding roosting or dispersal,
- For the long-term maintenance of the species (including maintenance of species essential to the survival of the sharp-tailed sandpiper),
- To maintain genetic diversity and long-term evolutionary development, or
- For the re-introduction of populations or recovery of the species.

The species is unlikely to permanently occupy the DE and is more likely to be present intermittently associated with migratory movement (ecologia, 2025b). However, the species may use drainage lines/rivers/creeks (major) for dispersal and foraging activities. The extent of potential Sharp-tailed Sandpiper habitat present in the DE is shown in Table 8-20.

Table 8-20: Sharp-tailed Sandpiper Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage lines/rivers/creeks (major)	Supporting habitat (dispersal and foraging)	1,657.22

The Sharp-tailed Sandpiper may use the drainage line/river/creek (major) habitat for dispersal and foraging. This habitat was reported to range from ‘Degraded’ to ‘Good’ condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and likely occurs intermittently during migratory movement to the Fortescue Marsh.

Common Sandpiper (*Actitis hypoleucos*) – Moderate Likelihood

Species Background Information

The Common Sandpiper is a small sandpiper, approximately 19-21 cm in length and a wingspan of approximately 32-35 cm (DoE, 2025b). The species has a dark brown body with greenish glossy feathers of cap, hind neck and mantle. The Common Sandpiper is listed as Migratory under the EPBC Act and the BC Act.

Abundance and Distribution

The population of the Common Sandpiper is estimated to be between 2.5 to 4 million (Bamford *et al.*, 2008). During the non-breeding season, approximately 3,000 individuals arrive in Australia from July onwards (Greering *et al.*, 2007). The Common Sandpiper has a widespread distribution, occurring along the entire Australian coastline as well as inland areas, however, they are most common in northern and WA (Higgins & Davies, 1996). Nuytsland Nature Reserve and Roebuck Bay are areas of national importance for the species in WA. The population of the Common Sandpiper is listed as a species of least concern on the IUCN Red List of Threatened Species.

Habitat Preferences

The Common Sandpiper utilises both coastal and inland habitats. The species is present within inland wetlands and sheltered coastal areas and utilises both permanent and ephemeral wetlands (ecologia, 2025b). The Common Sandpiper is a Migratory species that has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties



(DoE, 2025b). The species typically roosts on rocks or roots of branches of vegetation, particularly mangroves (Higgins & Davies, 1996). This species does not breed in Australia (DoE, 2025b).

Threats

The primary threat to the Common Sandpiper is human activity and associated disturbance such as habitat changes, regulation of rivers, pollution and the use of pesticides. Other threats include habitat loss, the reduction of quality and quantity of water and global warming (DoE, 2025b).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there is one record within 40 km of the DE. This record is from 2018 and is approximately 30 km from the DE.

This species was not recorded during recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Habitat critical to the survival of the Common Sandpiper is not defined. Within the DE, the species may use the drainage line/river/creek (major) habitat for dispersal and foraging. The extent of potential Common Sandpiper habitat present in the DE is shown in Table 8-21.

Table 8-21: Common Sandpiper Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage line/river/creek (major)	Supporting habitat (dispersal and foraging)	1,657.22

The Common Sandpiper may use the drainage line/river/creek (major) habitat for dispersal and foraging. This habitat was reported to range from 'Degraded' to 'Good' habitat condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and likely occurs intermittently during migratory movement to the Fortescue Marsh.

Red-necked Stint (*Calidris ruficollis*) - Moderate Likelihood

Species Background Information

The Red-necked Stint is the smallest shorebird in Australia, measuring approximately 13-16 cm in length (Geering *et al.*, 2017). The species has a small head, round forehead and a long body and short legs. The species' plumage varies depending on a variety of factors such as age, sex and season (Higgins & Davies, 1996). The Red-necked Stint is listed as Migratory under the EPBC Act and BC Act.

Abundance and Distribution

The Red-necked Stint occurs in large densities on the Victorian and Tasmanian coasts but is distributed along most of the Australian coastline, with records from all coastal regions as well as some inland records when conditions are suitable. The species travels and feeds in dense flocks (DoE, 2015). The species breeds near Siberia and western Alaska, moving to non-breeding areas in South-east Asia and Australia during winter months (BirdLife Australia,



2023). The species arrives in Australia from August to September and travels from north-west Australia to south-west Australia before crossing the continent towards the south, south-east and east coasts (Higgins & Davies, 1996). The Red-necked Stint has an estimated population of 353,000 in Australia (Watkins, 1993).

Habitat Preferences

Within Australia, the Red-necked Stint predominantly occurs in coastal areas such as sheltered inlets, bays, lagoons and estuaries. The species has been occasionally recorded on dry gibber plains with little to no perennial vegetation (Higgins & Davies, 1996).

The species usually forages on bare wet mud on intertidal mudflats or sandflats or in very shallow water (DoE, 2015). The Red-necked Stint mostly roosts on sheltered beaches, spits, banks or inlets of sand, mud, coral or shingle and occasionally on exposed reefs or shoals (Higgins & Davies, 1996).

Threats

The main threat to the species globally is direct and indirect habitat loss (Melville, 1997). According to the Species Profile and Threats Database (DoE, 2015), the threats to the Red-necked Stint within Australia include habitat loss and degradation, disturbance from residential and recreational activities and direct mortality.

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are three records within 40 km of the DE. These records are from 2017 and are located approximately 30 km north of the DE.

This species was not recorded during recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Habitat critical to the survival of the Red-necked Stint is not defined. Within the DE, the species may use the drainage line/river/creek (major) habitat for dispersal and foraging. The extent of potential Red-necked Stint habitat present in the DE is shown in Table 8-22.

Table 8-22: Red-necked Stint Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage line/river/creek (major)	Supporting habitat (foraging and dispersal)	1,657.22

The Red-necked Stint may use the drainage line/river/creek (major) habitat for dispersal and foraging. This habitat was reported to range from ‘Degraded’ to ‘Good’ habitat condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and occurs intermittently during migratory movement to the Fortescue Marsh.



Gull-billed Tern (*Gelochelidon nilotica*) – Moderate Likelihood

Species Background Information

The Gull-billed Tern is a large tern with a characteristic short, thick gull-like bill, heavy rounded head and short thick neck (DAWE, 2020). The species was previously grouped with the Australian Gull-billed Tern (*G. macrotarsa*) in the genus *Sterna*, however, has since been taxonomically split (DAWE, 2020). The species is listed as Migratory under the EPBC Act and BC Act.

Abundance and Distribution

The Gull-billed Tern has an estimated extent of occurrence of 163,000,000 km² with a decreasing trend (BirdLife International, 2019). Australian population estimate and trends are not known (DAWE, 2020). The species breeds at scattered sites within North and South America, Europe, Africa and Asia. The global population of the Gull-billed Tern has not been estimated separately however, the estimated combined population of the Gull-billed Tern and Australian Gull-billed Tern is between 150,000 to 420,000 individuals (Delany & Scott, 2006).

Habitat Preferences

The species breeds in various locations with bare, sparsely vegetation islands, banks, flats or spits of dry mud and sand, dunes, saltmarshes, salt pans, freshwater lagoons, estuaries, deltas, inland lakes, rivers, marshes and swamps (del Hoyo *et al.*, 1996, Higgins and Davies 1996). The Gull-billed Tern typically forages over salt pans, coastal lagoons, mudflats, marshes and wet fields (DAWE, 2020).

Threats

The primary threat to the Gull-billed Tern is human intrusion and disturbance from both recreational activities as well as egg and hunting in some areas of its range (Molina *et al.*, 2014).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are nine records within 40 km of the DE. These records are from 2007 to 2017. The closest record is approximately 9 km north-east of the DE and is from 2014.

This species was not recorded during recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Critical habitat is not listed for this species. Within the DE, the species may use the drainage line/river/creek (major) habitat for dispersal and foraging. The extent of potential Gull-billed Tern habitat present in the DE is shown in Table 8-23.

Table 8-23: Gull-billed Tern Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage lines/rivers/creeks (major)	Supporting habitat (dispersal and foraging)	1,657.22



The Gull-billed Tern may use the drainage line/river/creek (major) habitat for dispersal and foraging. This habitat was reported to range from 'Degraded' to 'Good' habitat condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and occur intermittently during migratory movement to the Fortescue Marsh.

Caspian Tern (*Hydroprogne caspia*) - Moderate Likelihood

Species Background Information

The Caspian Tern is the largest tern in Australia with long, backswept wings, a slightly forked tail and a red bill (DoE, 2025e). The species has a white body with black and white streaked crown, dark brown eyes and black legs (Higgins & Davis, 1996). There is little difference between the two sexes with an average body length of 53-60 cm and an average weight of 680 g (Higgins & Davis, 1996). The species is listed as Migratory under the EPBC Act and the BC Act.

Abundance and Distribution

The species has a scattered global distribution with an estimated extent of occurrence of 226,290,000 km² with an increasing trend (Birdlife International, 2018). The Caspian Tern has a widespread occurrence within Australia, found in both coastal and inland locations across all states and territories. In WA, the species is primarily found coastally in the region from the Great Australian Bight to the Dampier Peninsula (Higgins & Davies, 1996). The total population for the Caspian tern is estimated to be between 240,000 and 420,000 (BirdLife International, 2010).

Habitat Preferences

The Caspian Tern can be found in a variety of coastal and inland habitats, the species prefers sheltered seas and inland watercourses (estuaries, tidal creeks, near-coastal salt lakes) and brackish pools in the lower courses of rivers (ecologia, 2025b).

Threats

According to the Species Profile and Threats Database (DoE, 2025e), the threats to the Caspian Tern are habitat loss or degradation through the introduction of exotic species, predation of chicks by Silver Gulls, human disturbance and trampling by cattle, entanglement with fishing line, exposure to and bioaccumulation of contaminants and sea level rise.

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there is one record within 40 km of the DE. This record is from 2007 and is approximately 24 km south-east of the DE.

This species was not recorded during recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Critical habitat is not defined for this species. Within the DE, the species may use the drainage line/river/creek (major) habitat for dispersal and foraging. This habitat was reported to range from 'Degraded' to 'Good' condition (ecologia, 2025b).



This species is not expected to rely on any habitats within the DE and occurs intermittently during migratory movement to the Fortescue Marsh.

The extent of potential Caspian Tern habitat present in the DE is shown in Table 8-24.

Table 8-24: Caspian Tern Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage lines/rivers/creeks (major)	Supporting habitat (dispersal and foraging)	1,657.22



Glossy Ibis (*Plegadis falcinellus*) - Moderate Likelihood

Species Background Information

The Glossy Ibis is the smallest Ibis species found in Australia. It has a reddish-brown neck, a bronze-brown body, and wings with a metallic iridescent sheen. A distinguishing feature is its long, downward-curved bill, which is olive-brown in colour. The facial skin is blue-grey, with a white outline around the eyes. Males and females have similar plumage, though males are generally larger. The species has an average length of 55–65 cm and a wingspan of 80–95 cm (Hancock *et al.*, 1992).

Abundance and Distribution

Globally, the Glossy Ibis is widely distributed, occurring in eastern North America, the Caribbean, Europe, Russia, Siberia, Central Asia, sub-Saharan Africa, Pakistan, India, the Philippines, Indonesia, Papua New Guinea, and Australia (Beehler *et al.*, 1986; Coates & Bishop, 1997; Marchant & Higgins, 1990). In Australia, the species is typically found east of the Kimberley in WA and the Eyre Peninsula in South Australia, with patchy distribution across other parts of WA. It is considered rare or a vagrant in Tasmania (Beehler *et al.*, 1986; Coates & Bishop, 1997; Marchant & Higgins, 1990). The global population of the Glossy Ibis is estimated to be between 1,200,000 and 3,200,000 worldwide (BirdLife International, 2010).

Habitat Preferences

The Glossy Ibis prefers freshwater wetlands for both foraging and breeding. It is commonly found in marshes at the edges of lakes and rivers, lagoons, floodplains, wet meadows, swamps, reservoirs, sewage ponds, rice fields, and other irrigated agricultural areas. It can also occasionally be seen in coastal environments such as estuaries, deltas, saltmarshes, and coastal lagoons (del Hoyo *et al.*, 1992; Hancock *et al.*, 1992; Marchant & Higgins, 1990).

Within Australia, its prime habitat includes inland and northern floodplains, with the highest concentrations occurring in drying Top End grass and sedge swamps, as well as Channel Country grass and forb meadows. It is sometimes observed in wooded swamps, artificial wetlands (such as irrigated fields), and mangroves, where it may also breed (Chatto, 2000; Marchant & Higgins, 1990). During droughts, the species may retreat to permanent wetlands or coastal areas, including tidal wetlands (Marchant & Higgins, 1990). Glossy Ibises typically roost in trees or shrubs, usually near water bodies, though sometimes at more distant locations (Brown *et al.*, 1982; Marchant & Higgins, 1990).

Threats

The primary threat to the Glossy Ibis is the destruction and degradation of wetland habitats. Water diversion, drainage, irrigation, and hydroelectric power production significantly impact the availability of suitable areas for foraging and breeding.

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are four records within 40 km of the DE. The records are from 2016 to 2017, with the closest record being approximately 24 km south-east of the DE in 2016.

This species was not recorded during recent surveys (ecologia, 2025b; ecologia, 2026).



Species Habitat Extent, Quality and Importance

Habitat critical to the survival of the Glossy Ibis is not defined. The species may use drainage lines/rivers/creeks (major) habitat type for foraging and dispersal. This habitat was reported to range from ‘Degraded’ to ‘Good’ habitat condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and occur intermittently during migratory movement to the Fortescue Marsh.

The extent of potential Glossy Ibis habitat present in the DE is shown in Table 8-25.

Table 8-25: Glossy Ibis Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage line/river/creek (major)	Supporting habitat (foraging and dispersal)	1,657.22

Wood Sandpiper (*Tringa glareola*) - Moderate Likelihood

Species Background Information

The Wood Sandpiper is a small, slender wading bird measuring 19–23 cm in length, with a wingspan of 56–57 cm and an average weight of 55 g (DoE, 2024d). It has a short, straight bill, long legs, and dark grey-brown or plain brown plumage (DoE, 2024d). The species is listed as Migratory under both the BC Act and EPBC Act and is also protected under international agreements, including CAMBA, JAMBA, and ROKAMBA.

Abundance and Distribution

The Wood Sandpiper is most abundant in northwestern Australia, though it has been recorded across various regions of WA. The global population is estimated to range between 3,055,000 - 4,320,000 individuals (Bamford *et al.*, 2008). It is classified as a species of Least Concern on the IUCN Red List of Threatened Species.

Habitat Preferences

The Wood Sandpiper does not breed in Australia (DoE, 2024d). It primarily inhabits well-vegetated, shallow freshwater wetlands, including swamps, billabongs, lakes, pools, and waterholes (DoE, 2024d). The species is commonly associated with aquatic plants and taller fringing vegetation, particularly *Melaleuca* and *Eucalyptus camaldulensis* (River Red Gums). It can also be found in inundated grasslands, short herbage, and wooded floodplains. Foraging typically occurs along the moist or dry mud edges of wetlands (Higgins & Davies, 1996). The Wood Sandpiper has been recorded roosting on low, grassy hillocks in flooded meadows, as well as on low branches of trees and fences (Higgins & Davies, 1996).

Threats

Key threats to the Wood Sandpiper include habitat loss, habitat degradation, human disturbance and direct mortality (DoE, 2024d).



Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there are six records within 40 km of the DE. The records range from 2007 to 2016, with the closest record approximately 12 km north-east from the DE recorded in 2010.

This species was not recorded during recent surveys (ecologia, 2025b, ecologia, 2026).

Species Habitat Extent, Quality and Importance

Critical habitat for the Wood Sandpiper is not defined. The species may use drainage lines/rivers/creeks (major) habitat type for dispersal and foraging. This habitat was reported to range from ‘Degraded’ to ‘Good’ condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and occur intermittently during migratory movement to the Fortescue Marsh.

The extent of potential Wood Sandpiper habitat present in the DE is shown in Table 8-26.

Table 8-26: Wood Sandpiper Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage line/river/creek (major)	Supporting habitat (dispersal and foraging)	1,657.22

Marsh Sandpiper (*Tringa stagnatilis*) - Moderate Likelihood

Species Background Information

The Marsh Sandpiper is a monotypic, medium-sized wader measuring 22–26 cm in length with a wingspan of 40–45 cm. In all plumages, the species is characterized by a contrasting outer wing, a very pale whitish tail, and a distinctive bold white wedge extending up the back (Higgins & Davies, 1996).

Abundance and Distribution

Marsh Sandpipers can be observed alone or in small to large flocks and often associate with other waders, particularly Greenshanks, especially in salt fields.

Globally, the species occurs throughout southern and northern Africa, Indonesia, Malaysia, New Guinea, the Philippines and western Micronesia. Additionally, the Marsh Sandpiper migrates through eastern China, Korea, and Japan. (Higgins & Davies, 1996).

In Australia, the species is found in coastal and inland wetlands across Australia and is particularly widespread along the coast of Queensland. In WA, it is predominantly recorded near the coast (Higgins & Davies, 1996). The Australian population is estimated to be around 9000 individuals (Watkins, 1993).

Habitat Preferences

The Marsh Sandpiper inhabits permanent and ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, inundated floodplains, intertidal mudflats, sewage farms, and saltworks (ecologia, 2025b). The species



forages in shallow waters along the edges of wetlands and roosts and loafs on tidal mudflats, low saltmarsh, and inland swamps (Higgins & Davies, 1996).

Threats

Global threats to the Marsh Sandpiper include indirect and direct habitat loss (Melville, 1997). In Australia, threats include habitat loss and modification, anthropogenic disturbance, climate change and variability, harvesting of shorebird prey, fisheries bycatch and hunting (DoE, 2015).

Known Populations in the Vicinity of the DE and Broader Region

According to the DBCA database, there is one record within 40 km of the DE. This record is from 2016 and is approximately 14 km south-east of the DE.

This species was not recorded during recent surveys (ecologia, 2025b; ecologia, 2026).

Species Habitat Extent, Quality and Importance

Critical habitat for the Marsh Sandpiper is not defined. The species may use the drainage line/river/creek (major) habitat for dispersal and foraging. This habitat was reported to range from 'Degraded' to 'Good' habitat condition (ecologia, 2025b).

This species is not expected to rely on any habitats within the DE and occur intermittently during migratory movement to the Fortescue Marsh.

The extent of potential Marsh Sandpiper habitat present in the DE is shown in Table 8-27.

Table 8-27: Marsh Sandpiper Habitat Types in the Development Envelope

Habitat type	Habitat importance	Extent in DE (ha)
Drainage line/river/creek (major)	Supporting habitat (dispersal and foraging)	1,657.22

8.4.6 Short-Range Endemic Invertebrates

The SRE desktop review focussed on WA Museum records from a 40,000 km² area that was centred on the middle of the SRE Survey Area (as defined in Section 8.3.3). The desktop review identified a total of 19 species (six described) and 12 higher taxonomic ranks or species-complexes in the SRE target groups in the Study Area. These included one confirmed SRE, the flattie *Karaops feedtime* and eight potential SREs. Five of these potential SRE species are currently only known from the Study Area ('Study Area endemics').

The survey recorded a total of 73 species from SRE target groups. Of these, 12 are widespread species, 45 were potential SREs and one is a confirmed SRE, the keeled millipede *Antichiropus sloanae*. This species is listed as Priority 1 (P1) under WA conservation legislation. Forty species are currently only known from the Study Area ('Study Area endemics'). SREs identified in the Survey Area (Figure 8-11) include:

- Opiliones (harvestmen; one taxon),
- Pseudoscorpions (pseudoscorpions; 15 taxa),
- Geophilomorpha (soil centipedes; six taxa),



- Scolopendromorpha (tropical centipedes; three taxa),
- Diplura (two-pronged bristletails, one taxon),
- Isopoda (slaters; 13 taxa), and
- Eupulmonata (land snails; one taxon).

One species collected in the DE, the Roy Hill *Antichiropus* Millipede (*Antichiropus sloanae*), is a DBCA Priority 1 listed species. This species has been recorded outside the Survey Area.

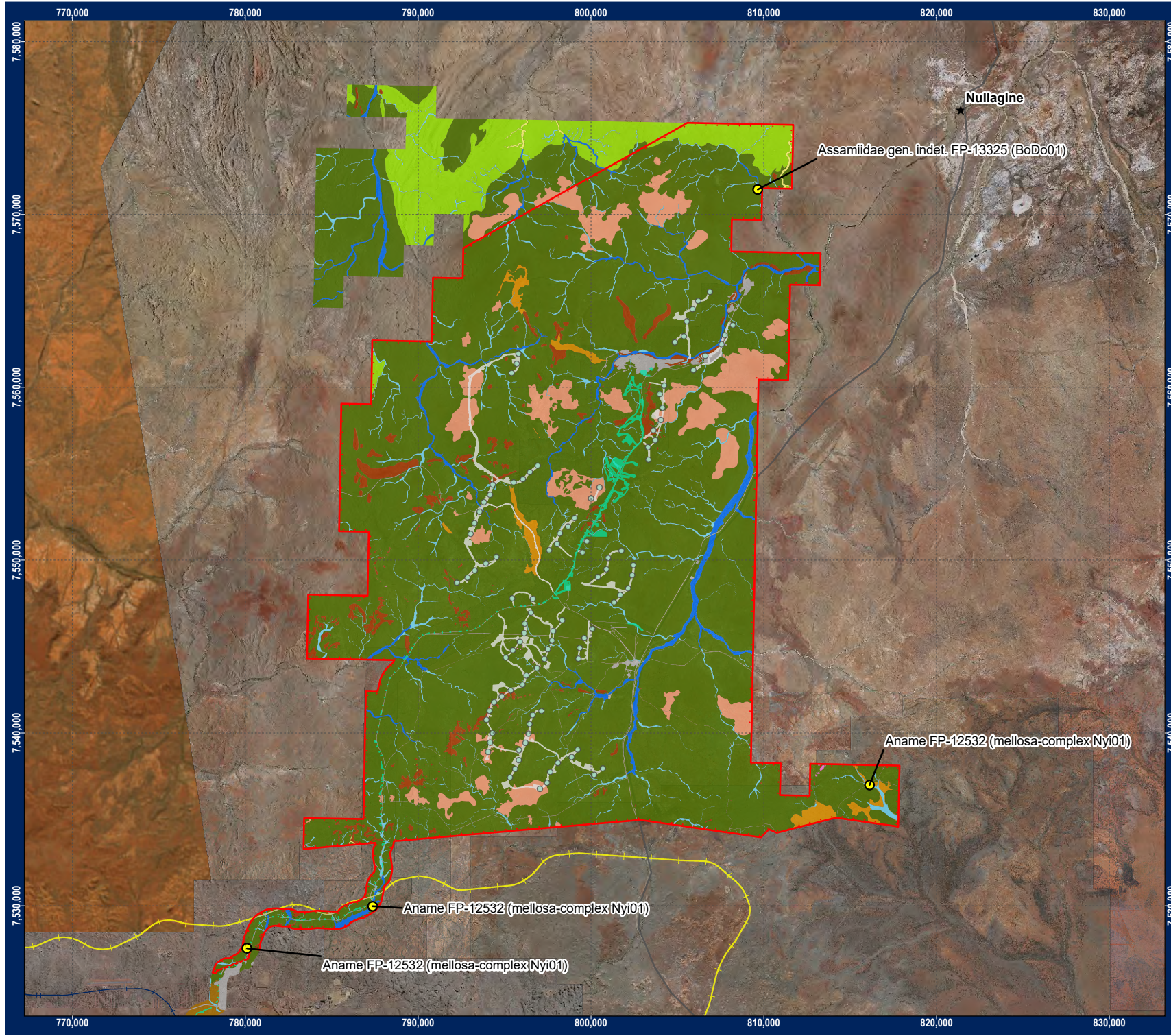
The high level of SREs not previously identified together with the low number of SRE and potential SRE species previously recorded within the Survey Area, suggests that the Survey Area has been poorly studied for SREs (HBI, 2024). Survey effort was considered appropriate for the purpose of a baseline survey (HBI, 2024).

The Survey Area was categorised into four habitat categories: (1) the grassland on plain in drainage line, (2) the woodland along rockface/gully, (3) the woodland in drainage line, and (4) the woodland on plain. The majority (51) of the 76 SRE or potential SRE taxa collected were recorded from a single habitat type, from woodland in drainage lines. However, survey effort was focused within this habitat. However, of the four principal habitat types identified during the field survey none have a significant role in the determination of SRE occurrence (HBI, 2024; ecologia 2025b).

HBI has completed an assessment of significance for the Survey Area compared to other Fortescue Projects. The assessment indicated that the size of the Survey Area as well topographical variation is likely to result in greater numbers of SREs compared to smaller survey areas or areas of less topographical complexity (HBI, 2024).



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Legend

Development Envelope	Fauna Habitats
GOV Towns	Cleared
Major Roads	Drainage Line/River/Creek (major)
Fortescue Rail	Drainage Line/River/Creek (minor)
Roy Hill Rail	Gorges/Gullies
Turbine Locations	Granite Outcrops (flat dome)
Indicative Disturbance Footprint	Hills/Ranges/Plateaux
Approved Disturbance (Nullagine Pilot Wind Farm)	Plain (Cracking clays)
SRE Records - Araneae and Opiliones	Plain (stony/gibber)
	Rocky Escarpments (Ridges/Mesa/Cliffs/Outcrops/Breakaways)
	Woodland (closed)
	Woodland (open)

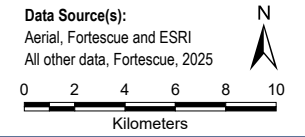


Figure 8-11-1
 Short-range Endemics (SRE) occurrences within the Development Envelope

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_027a_r0_SRE_Habitats
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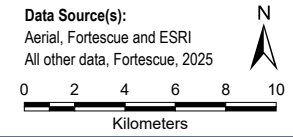
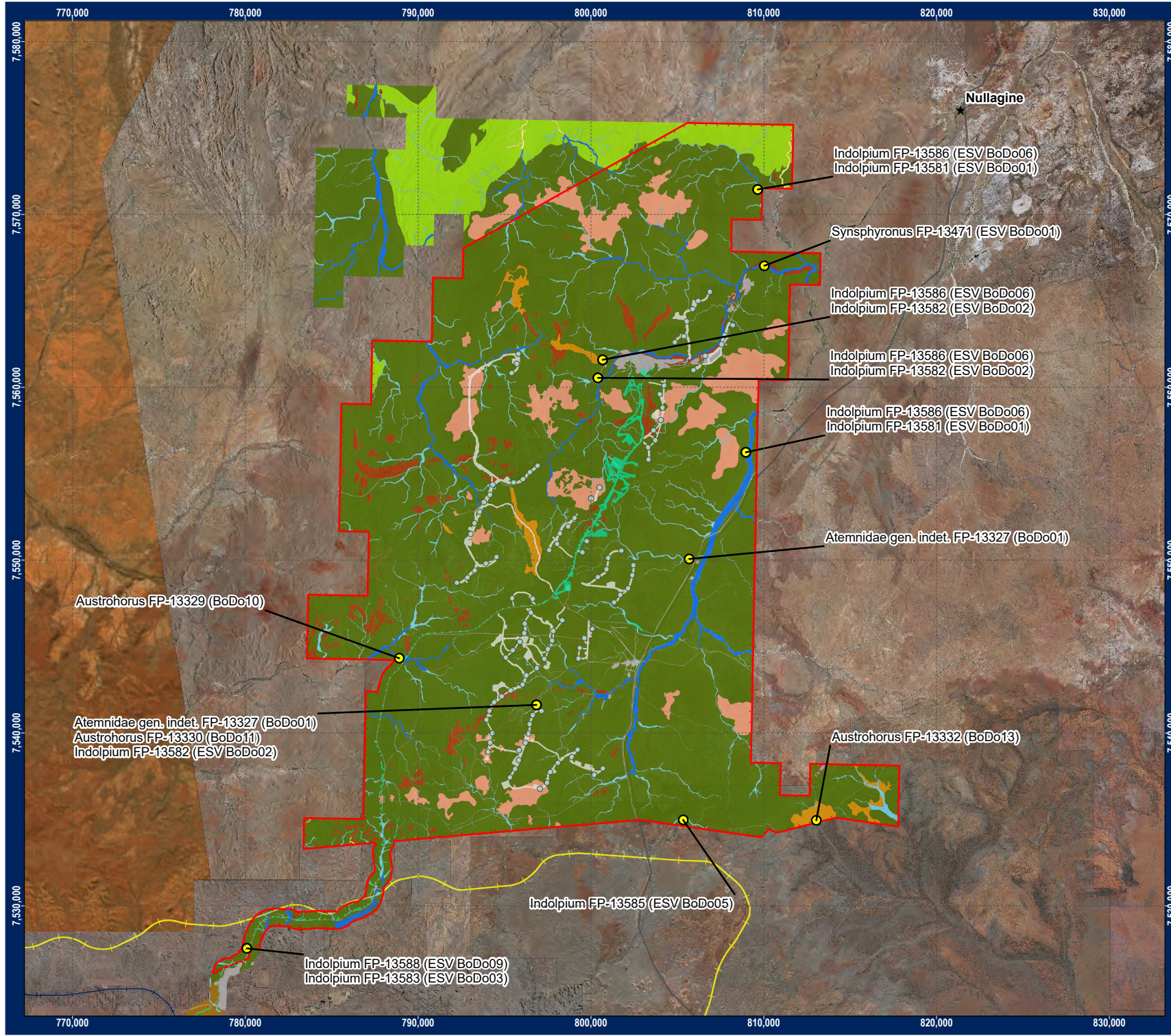


Figure 8-11-2
 Short-range Endemics (SRE) occurrences within the Development Envelope

Requested By: R. Dorji Date: 1/29/2026
 Drawn By: R. Kerr Size: A4L
 Revised By: rykerr Revision: 0
 Approved By: Confidentiality: 0
 Scale: 1:300,000
 Coordinate System: GDA 1994 MGA Zone 50
 Project Name: 4519OP002_MP_EN_0093_PartIV_2
 Document Name: 4519OP002_MP_EN_0093_027b_r0_SRE_Habitats
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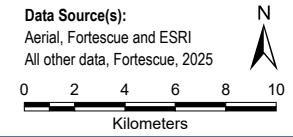
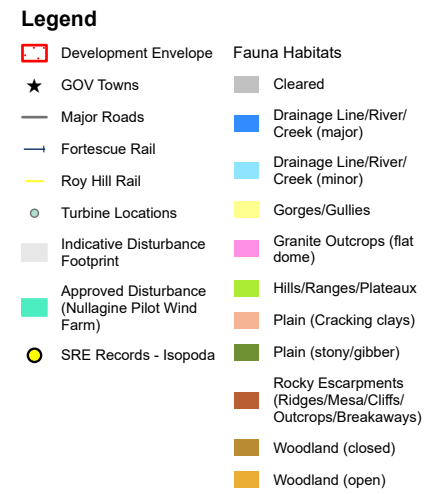
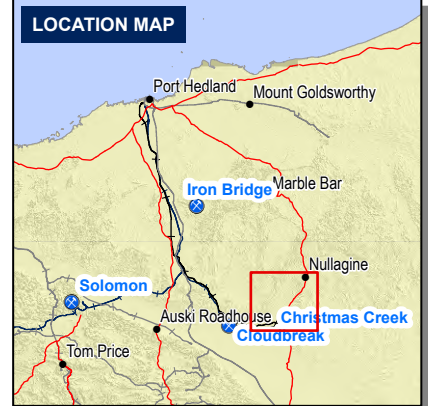
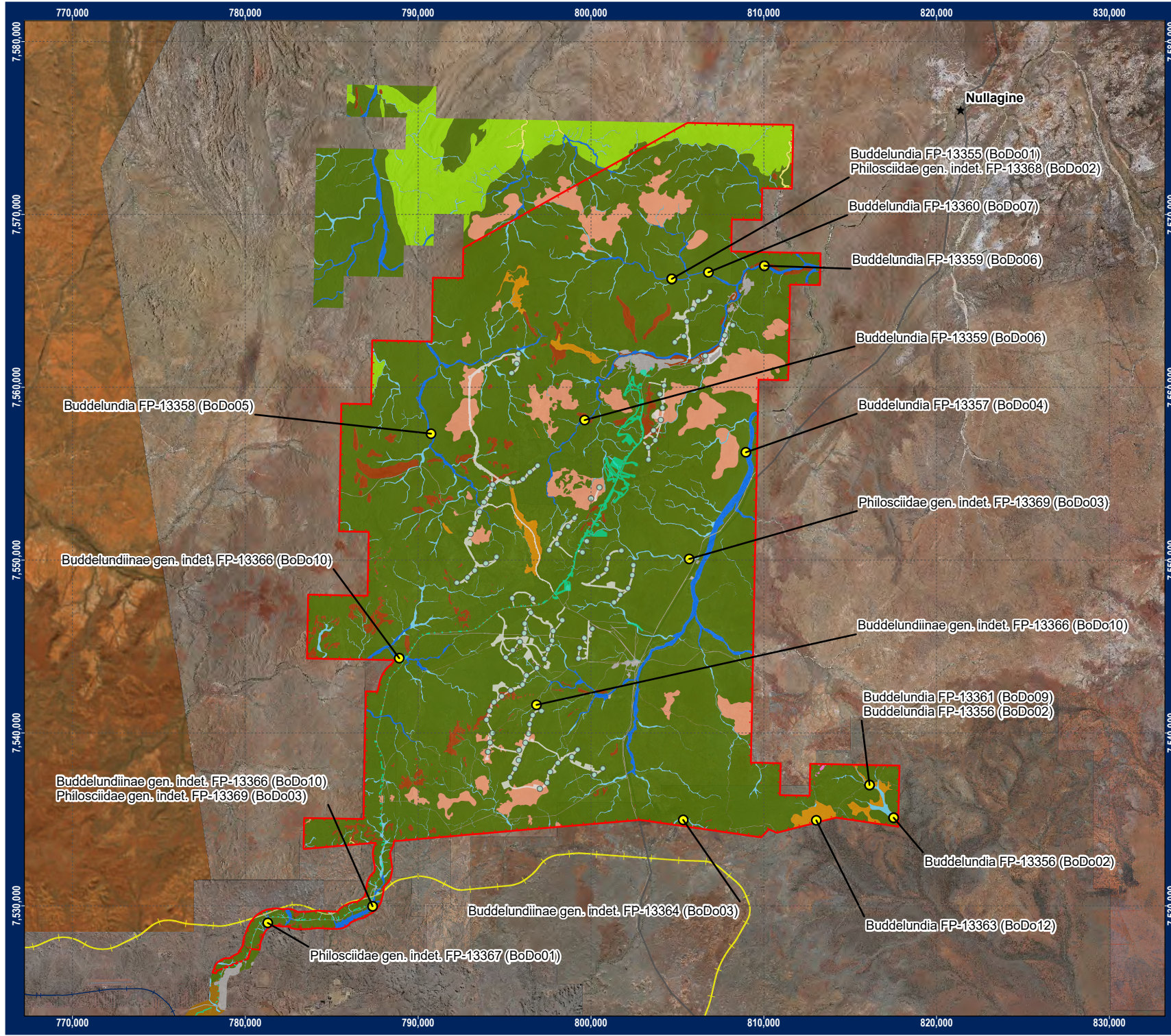


Figure 8-11-3
Short-range Endemics (SRE) occurrences within the Development Envelope

Requested By: R. Dorji
Drawn By: R. Kerr
Revised By: rykerr
Approved By:
Scale: 1:300,000
Coordinate System: GDA 1994 MGA Zone 50
Project Name: 4519OP002_MP_EN_0093_PartIV_2
Document Name: 4519OP002_MP_EN_0093_027c_r0_SRE_Habitats

Date: 1/29/2026
Size: A4L
Revision: 0
Confidentiality: 0

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